

# SD Times

SOFTWARE DEVELOPMENT

The Industry Newspaper for Software Development Managers

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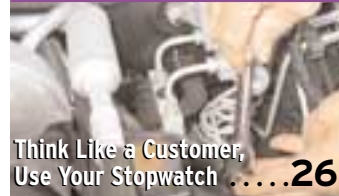
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## COMPUWARE PLANS UPDATES TO STAY AHEAD OF MICROSOFT

Updated DevPartner Studio to add application security, error-handling features

BY JENNIFER DEJONG

Eager to stay one step ahead of Microsoft, Compuware Corp. is expanding its DevPartner product line for .NET developers, planning new features that it doesn't expect to see included in Microsoft's upcoming Visual Studio Team System.

"Microsoft's plans for Team System encouraged us to look further up the stack," said Peter Varhol, DevPartner product manager at the Detroit, Mich.-based company. He noted that Team System is expected to include code coverage capabilities (based on tools that Microsoft uses internally), simi-

lar to features offered in DevPartner Studio, Compuware's .NET tool that analyzes code to detect errors and improve performance.

Late this year or early next, Compuware expects to deliver an application security tool that enables developers to locate and fix security vulnerabilities in ASP.NET applications, as well a tool that simulates error conditions so developers can test error-handling code more reliably, he said. Neither offering has been named yet, but both products will be part of the DevPartner line.

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## Mercury Rises In Process Test Market

New tool lets process writers ensure apps do what they're supposed to do

BY DAVID RUBINSTEIN

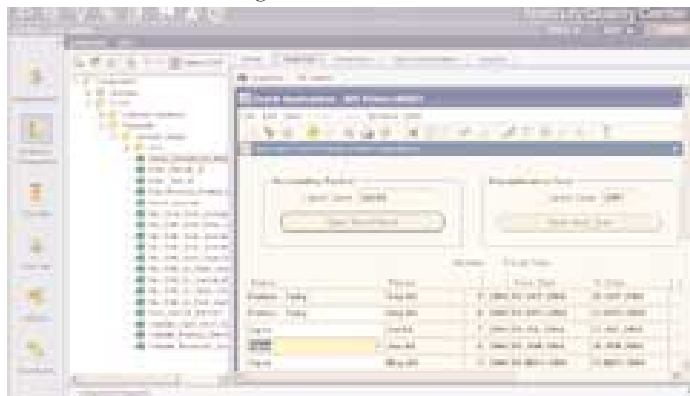
If business analysts are writing the requirements for applications, shouldn't they also be involved in ensuring the application meets those requirements before it is released into production?

Testing tools company Mercury Interactive Corp. thinks so. Late last month, it released Business Process Testing, a tool

that allows the business process designer to check in pre-production the processes underlying an application, according to Christopher Lochhead, Mercury's chief marketing officer.

Lochhead explained Mercury's vision of software delivery, part of its Business Technology Optimization strategy. "The process analyst works with

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Business Process Testing reduces test costs and time for customers using such ERP/CRM systems as Oracle Applications 11i, Mercury claims.

## The Pride of the (Open Source) Community

More businesses joining in, but are they dividing the initiative?

BY EDWARD J. CORREIA

While it's not universally admired, few would disagree that the phenomenon of community development around the open-source software model has taken hold in many organizations. While first seen by proprietary software companies as perhaps everything from fad to fascism to a force to be reckoned with, many have realized that it's better to ride Goliath's massive strength than to nip at its heels.

And while Eric Raymond, Richard Stallman and the other vocal few pioneers of the move-

ment are easily identifiable, its broadening by corporate acceptance of open source in recent years has muddled the waters (See "Laszlo to Take Open Source Route," page 15). So, is there still an "open-source community," or has it splintered into

smaller, independent factions?

Corporate embrace has not divided the initiative, according to Eric Raymond, co-founder and president of the Open Source Initiative and author of "The Cathedral and the Bazaar," a collection of essays

published in 1999. "In fact, the trend is strongly in the opposite direction," he said, crediting Linux as a key unifying platform.

"The emergence of Linux that hosts other open-source technologies such as Apache or

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## CAUTIONARY TALE OF BRIAN CONNOLLY

A word to the wise about soliciting help from the open-source development community: it might imperil your intellectual property. But then again, maybe not.

Many open-source developers have by now heard about recent events involving Brian Connolly, CEO of Furthermore Inc., a company building a news-and-commentary Web site.

According to reports, Connolly hired developer Emir Sakic to make some changes to Mambo OS, the open-source version of Mambo CMS, a closed-source content management system.

But then content-management features similar to those Connolly had contracted—changes that he believed were unique and he owned, but which other developers say aren't unusual—appeared on a competitor's Web site. Connolly then issued a warning of legal consequences to anyone using those features.

Sakic has denied any allegation of code theft, and it appears that because the code changes were in server-side PHP scripts, they were unlikely to have been lifted from the Furthermore site directly.

So, did Sakic give the code to Connolly's competitors? Were the competitors' implementations of those features code theft, or the result of clean-room engineering? The copyright dispute is ongoing.

And the peril of bringing open-source projects into a business remains an open question.

—Edward J. Correia





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# Eclipse Gaining Traction

New study shows significant number of developers using open-source tools framework

BY ALAN ZEICHICK

More than half of all developers are using Eclipse, with the bulk of those users developing Java applications—and the biggest reason why Eclipse is being adopted is because it's an open-source platform, according to a recent study conducted by BZ Research.

The Eclipse adoption study conducted in late August by BZ Research, a subsidiary of BZ Media LLC, publisher of SD Times, was completed by 719 individuals, and has an accuracy of 3 percentage points.

According to the study, 13 percent of developers indicate that Eclipse is used by all developers within their organization; 16 percent say it's used by more than half of developers, and 25 percent say that some—but fewer than half—use Eclipse. Another 43 percent say it's not in use, and 3 percent don't know.

Java is the dominant language used for applications being built with Eclipse, say 83 percent of respondents. About 10 percent are building C/C++ applications. What are the applications being built for? Of

the respondents, 37 percent said they are writing server applications, while 14 percent said they were writing applications for desktops or mobile devices.

Eclipse is also used for building native applications, with 13 percent saying that they're writing native Windows apps, 9 percent saying they're building applications for Linux, and 4 percent building for Unix.

Despite Eclipse's newfound popularity, it's certainly not the only IDE being used by developers. Sixty-nine percent said that Visual Studio or VS.NET is in use within their organization; 29 percent are using Borland's JBuilder, 18 percent are using Sun's NetBeans or NetBeans-based tools, and 19 percent are using other IDEs.

While Eclipse is gaining traction, it hasn't made it as a corporate standard. Only eight percent of respondents say that they (or their organization) requires that new development tools be Eclipse-based. However, 29 percent said that it's preferred. Still, 53 percent said the

What types of Eclipse plug-ins are you currently using or considering using in the future?



Eclipse compatibility is neither required nor preferred; 10 percent didn't know.

Why is Eclipse being used? Primarily because it's open source, say 66 percent of respondents. Its low cost—free—also appeals to 60 percent, and its extensibility to 54 percent. Only a small number,

12 percent, indicated that Eclipse is being used because it's an alternative to Microsoft's tools; a bigger percentage, 15 percent, say they use Eclipse because they're following IBM's lead.

This was BZ Research's first Eclipse study, and this research will be conducted annually. ■

## Altova Plays Both Sides In W3C Specifications War

XMLSpy 2005 to support latest versions of XSLT, XPath, XQuery; preps for November release

BY EDWARD J. CORREIA

To placate both sides in what it characterizes as an XML standards struggle, Altova Inc. will add support for XSLT 2.0, XPath 2.0 and XQuery in the 2005 editions of XMLSpy, MapForce, StyleVision and Authentic, its development tools for building XML-based applications, database front-ends and style sheets. The tools, which also now plug into Eclipse, were released for beta testing on Oct. 4 and are set for general availability on Nov. 1.

According to Tim Hale, Altova's director of marketing, XMLSpy's user base is sharply divided over which standards to use to develop data-access applications. "There's been a religious war between XQuery and XSLT 2.0. Database-orient-

ed people like XQuery, and document and XML people like XSLT and XPath 2.0. With XMLSpy 2005, Altova plays peacemaker by supporting both."

Aside from new standard support, Hale said XMLSpy's most significant new feature is SchemaAgent, a graphical tool that he said permits developers to create and reuse database schemas to help keep implementation consistent across the enterprise. "For instance, let's say developers have a certain way they want to use address [fields] throughout the organization. They can create an address schema and pull it in anytime they develop a new application."

He said SchemaAgent also simplifies the reuse of existing

schemas to build larger, more complex ones. "SchemaAgent finds and lists all of an organization's schemas, which developers can drag in and attach with lines. Then SchemaAgent generates the full schema code." Pricing for XMLSpy 2005 will start at US\$999.

New in MapForce, Altova's \$599 drag-and-drop data integration tool, is a visual function builder, which Hale described as a means to build complex data processing functions that can be stored, reused and combined to larger, more complex ones. "If your input data has a customer first name and last name in separate fields [for example], and the target is expecting the full name in one field, you can combine those with one function."

Hale said that while previous versions permitted developers to use XSLT libraries to perform such transformations, it was a manual and error-prone process. "It's now faster and easier to design complex mappings." MapForce also now supports flat files, and the ability to generate code for XSLT 2 and XQuery, adding to Java, C++ and C# of the previous version.

New in the \$599 StyleVision 2005, the company's stylesheet designer, is the ability to instantly preview XSLT 2.0 output. It also can output in Microsoft Word's RTF format. The tool also can create database-enabled electronic forms for use with Authentic, Altova's free interface builder for XML, which now also supports data-

base back-ends.

According to Hale, Authentic lets developers create data-driven applications that can be populated by electronic forms, using a salesforce automation app as an example. "You may want your sales team in the field to generate sales reports on a monthly or weekly basis. Rather than loading Microsoft Access on each of their machines, they can point their Web browser to your application and they can enter their sales numbers in a form, and save them to the database."

First tried in March, bundle pricing will continue with the 2005 releases of XMLSpy, MapForce and StyleVision, which essentially delivers one module free to buyers of the other two. ■



# Java's Tiger Bares Its Teeth

## JCP finishes J2SE 5.0; Sun readies tools for next version of Solaris

BY YVONNE L. LEE

A spate of specifications passed through final balloting in September as Sun Microsystems Inc.'s Java Community Process finalized Java 2 Standard Edition version 5 (J2SE 5.0), which became available at the end of that month.

Sun, as specification lead for the platform, created the reference implementation of J2SE 5.0, which had been code-named Tiger, and a development kit, which can be downloaded from Sun's Web site, java.sun.com.

"It's really our largest Java update since 1.2," said Graham Hamilton, Sun's chief architect for Java. "It includes significant new language features, making the release more manageable. We're also working on ease of development, and we've upgraded the core XML support."

Those JSRs, or Java Specification Requests, which comprise the J2SE 5.0 platform, include JSR 176, the release

candidate specification for J2SE 5.0 itself, and 15 component JSRs. New language features in J2SE 5.0 support generics, metadata, enumerated types and enhanced for loops.

Sun's J2SE 5.0 Runtime Edition will run on 32- and 64-bit versions of Linux and Solaris, and on 32-bit Windows. There's also an early-access version for developers using prerelease versions of 64-bit Windows on AMD's 64-bit architecture, said Hamilton. He added that Sun is working with Apple to develop a runtime edition for Mac OS X.

Later this month Sun will also ship a version of its NetBeans IDE that will enable developers to build J2SE 5.0-based applications, Hamilton said.

The prior version of J2SE had been numbered 1.4, but according to a document on developer.sun.com, "changing the version of the next release from 1.5 to 5.0 better reflects the level of maturity, stability,

scalability and security built into J2SE." This is reminiscent of Sun's operating system naming conventions: the successor to Solaris 2.6 was Solaris 7.

The interface for windows, buttons and other elements also have been changed from the Metal design to a design called

Ocean, which specification lead Blake Connell described as having more subtle colors and transparent Windows.

"A lot of people liked Metal," he said. "Ocean is a smoother more transparent look and feel which will fit nicely in the Mac, Windows and

### SOLARIS 10

Also in September, Sun announced tools for Solaris 10, which is scheduled to ship at the end of this year. Solaris 9 applications will run unaltered on Solaris 10, but the tools will be able to take advantage of Solaris 10 features such as Dtrace, which enables developers, administrators and quality assurance staff to troubleshoot an application in real time without stopping the application.

Sun will ship its Studio 10 integrated development environment in the fourth quarter. The IDE supports C, C++ and Fortran as well as Java. It will provide additional support for 64-bit applications running on the AMD Opteron and Intel's 64-bit Xeon processor lines.

In addition, Sun has opened the Solaris 10 Developer Collection, a developer Web site that includes developer guides, software downloads, documentation and forums. ■

## THE POWER BEHIND TIGER

**JSR 3** Java Management Extensions (JMX) Specification

**JSR 13** Decimal Arithmetic Enhancement

**JSR 14** Add Generic Types to the Java Programming Language

**JSR 28** Java SASL Specification

**JSR 114** JDBC Rowset Implementations

**JSR 133** Java Memory Model and Thread Specification Revision

**JSR 163** Java Platform Profiling Architecture

**JSR 166** Concurrency Utilities

**JSR 174** Monitoring and Management Specification for the Java Virtual Machine

**JSR 175** A Metadata Facility for the Java Programming Language

**JSR 199** Java Compiler API

**JSR 200** Network Transfer Format for Java Archives

**JSR 201** Extending the Java Programming Language with Enumerations, Autoboxing, Enhanced for loops and Static Import

**JSR 204** Unicode Supplementary Character Support

**JSR 206** Java API for XML Processing (JAXP) 1.3

The Java Community Process notes that the final specification for J2SE 5.0 may not include all of these JSRs, and may include some JSRs not present on this list.

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- ◆ "Searches at blazing speeds" — *Computer Reseller News Test Center*

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# Adaptive Discovery Calls Out for Rules on the Fly

Ultimus claims it can prompt experts to write rules when business process has no place to go

BY JENNIFER DEJONG

BPM software vendor Ultimus Inc. aims to automate the process of defining the rules that govern which path a busi-

ness process should take.

The Cary N.C.-based company announced last month Adaptive Discovery, a technology it plans to incorporate in

its Ultimus BPM Suite 7.0 by the first quarter of next year. "The developer says, 'Tell me all the requirements for your process; then tell me all the

rules that govern the different paths,'" said Hank Barnes, Ultimus' vice president of marketing and product management. Developers depend

on business experts to define the rules, but, because many processes have emerged informally over time, business experts don't always know all the rules, he said. "That puts the software development team between a rock and a hard place."

## RULES WHEN NEEDED

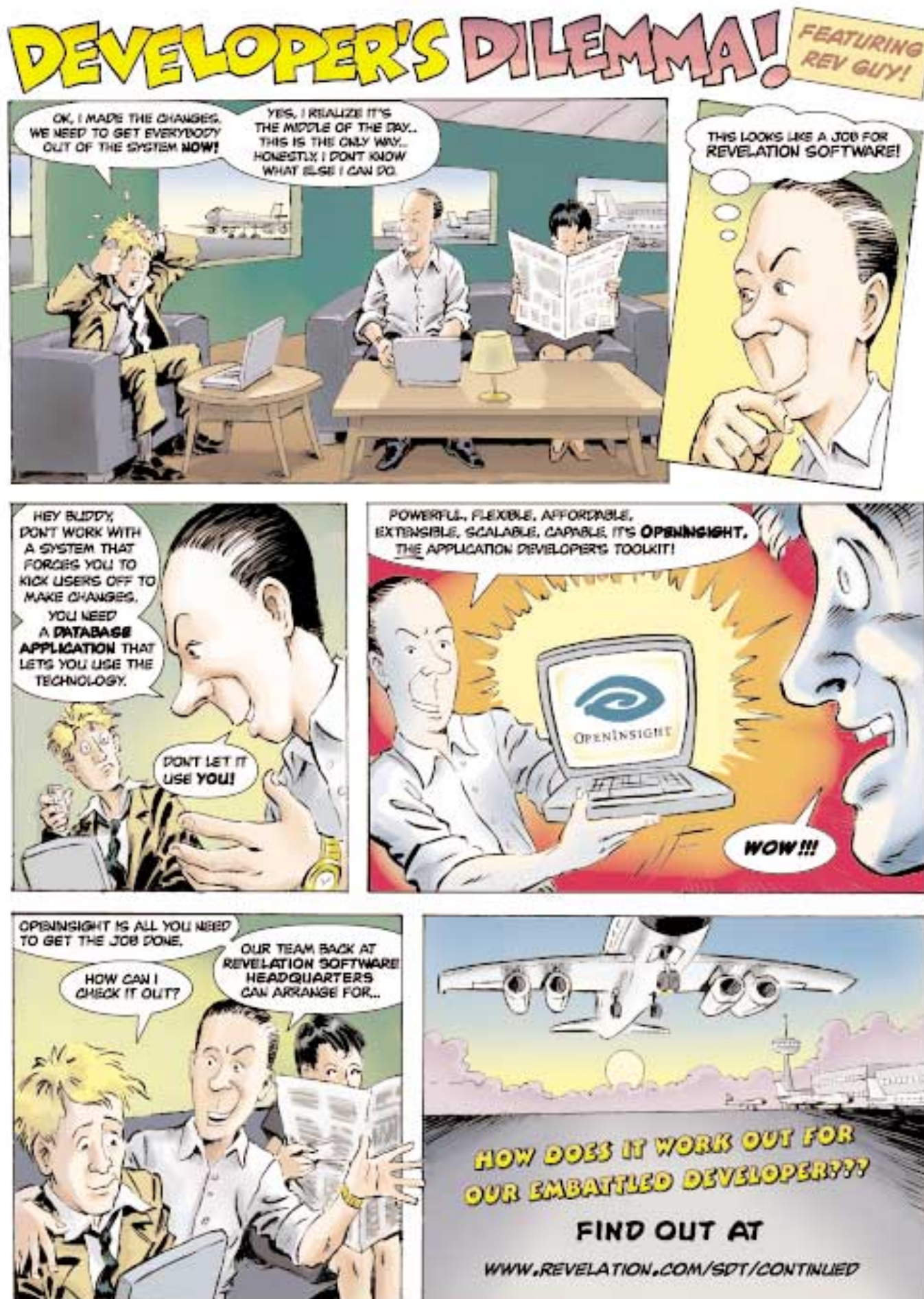
Adaptive Discovery addresses that problem by getting rules created "on the fly," while an actual business process, such as placing an order, is taking place, Barnes said. The developer still has to work with the business side of the house to determine things such as who owns a process, what systems it touches and what tasks are associated with it, said Barnes. "But you don't have to define what causes a process to go where."

When Adaptive Discovery recognizes it doesn't know where to go next, it flags the appropriate process expert, via e-mail. The e-mail might say, for example: "This is a request for customer Acme for a new widget assembly, which requires new design, needs fabrication, needs response by the 15th," said Barnes.

The process expert then creates the appropriate rules, such as "if the due date is less than 30 days, send the request to the accelerated engineering board," or "if it requires fabrication, send it to design," he said. Based on that information, the rule is built out and published in real time, said Barnes. "Process experts discover rules as the process is happening and the software applies them."

Rules, roles, and routes pertaining to business processes are constantly changing, said Barnes. "Adaptive Discovery alleviates the developers' pain of trying to define what business users tell them is undefinable."

Ultimus BPM Suite, which starts at US\$15,000 per server, competes with offerings from Fuego, HandySoft, Savvion and Staffware, which TIBCO Software Inc. agreed to acquire in April. Ultimus claims none of its competitors offer technologies that perform the same functions as Adaptive Discovery. ■





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# New Hardware Security Keys Vie for Attention of ISVs

Aladdin, SafeNet fortify copy protection devices

BY EDWARD J. CORREIA

Digital security vendors Aladdin Knowledge Systems Ltd. and SafeNet Inc. both released new versions of their plug-in copy protection devices recently along with claims that they help ISVs simplify development and speed time to market, each in their own way. Of course, both also claim stronger security.

Gregg Gronowski, vice president of software DRM (digital rights management) at Aladdin, said his company's new HASP HL hardware key permits developers to implement security independently from its licensing, significant to publishers that wish to offer a product as trialware, try-and-buy, or under a subscription or purchase-only plan.

"In the past, the publisher would have to work back and forth with the developer every time they wanted to implement one of those sales models," Gronowski said, adding that developers now can secure the product once and the product management and marketing departments determine which type of model they want to deploy. "They no longer have to involve the software developer."

HASP HL, which is a variation of Aladdin's stalwart HASP4 and Hardlock keys, will not leave customers out in the cold, asserted Gronowski. "We are aware of what our customers have out there and won't abandon them. Our new technology is fully backward compatible with previous technologies." HASP HL's so-called "protect once, deliver many" technology was introduced in software earlier this year.

To facilitate the new capabilities, HASP HL is available with as much as 14 Kbytes of memory; the previous version was limited to a maximum of 496 bytes.

SafeNet bumped up the memory in the hardware key introduced with UltraPro, a new line under its Sentinel brand that according to Prakash Panjwani, vice president and general manager of Safenet's Rights Management business unit, also includes a significantly improved API. "Rather than programming to the five different APIs ordinarily needed, we've abstracted them into one API that does all the functionality," he said.

Panjwani admitted that previously a typical software security scenario was complicated, and would require developers to manually track cells and memory, start, verification and end dates, and whether license models were subscription-based or purchased outright. "This process would literally take four or five weeks to implement. Now all a developer has to do is input the start and end dates. We handle all the other implementation and inject it into the key."

Among the most significant new security features in UltraPro, according to Panjwani, is a specific remedy to so-called brute-force attacks. "We do this by limiting the number of tries that a person can have. We also go a long way to preventing record-and-playback attacks," he claimed.

Both Aladdin and SafeNet now support the advanced encryption standard (AES), which recently replaced DES as the U.S. government's standard encryption. ■

# FRAME APPS WITH GT'S IVORY

Tool integrates Web services to legacy data and apps

BY YVONNE L. LEE

Mainframe integration software maker GT Software Inc. this month began shipping integration software that ties mainframe data and applications to Web services.

"If it's true what the pundits say that 70 percent of the data's still on the mainframe, then if I don't include the mainframe, my Web services could fail," said founder and CEO Joe Ganem.

The software, which is called Ivory Web Services, has two parts: the Studio graphical application builder that resides on developers' PCs, and server software that resides on the mainframe. The server software includes SOAP processor, rules processor, MQ series transit processor, HTTP and HTTPS processor, and data access drivers. Later this year, the Atlanta

company plans to ship an update that will allow Ivory to consume Web services as well as publish them. Ivory costs around US\$150,000 per mainframe, Ganem said.

Developers use the Studio graphical tool to build composite Web applications by dragging icons onto a workspace and directing the flow. The server will automatically generate the necessary SOAP or WSDL, said Sal Apollo, vice president of sales.

In addition to the development tools, Ivory has a built-in testing environment. The software generates code that adheres to the Web Services Interoperability Organization's (WS-I's) Basic Profile 1.0, so resulting code can be tested using other tools such as Mindreef's SOAPscope and Cape Clear's Business Integration Suite, Apollo said. ■



# Software FX Puts Chart FX Right In Your Pocket

Leading charting technology now available for the .NET Compact Framework and Smart Device applications.

Software FX began shipping Pocket Chart FX for the .NET Compact Framework this month. Priced at a reasonable \$599, Pocket Chart FX includes most the robust features offered in the full Chart FX for .NET, leaving out only those that are not applicable due to device or platform limitations. Pocket Chart FX is also included at no extra charge to the full version of Chart FX for .NET, priced at \$2,699, that includes both Windows Forms and Web Forms functionality.

Pocket Chart FX for .NET is a charting component for rapidly developing applications that extend enterprise data visualization and analysis capabilities to mobile devices. With Visual Studio .NET and Chart FX for .NET, developers can quickly build powerful graphical applications that connect to mission critical data and run on Smart Devices.

**"With Pocket Chart FX you can expect a component with the right feature set, portability and memory footprint for your mobile applications."**

Pocket Chart FX for .NET provides a design-time experience assembly compiled against the .NET Framework that integrates seamlessly into Visual Studio .NET, allowing you to setup chart attributes and properties easily. This consistency ensures that there are no features in the design time version of the control that will not be available in the run-time version limited to work in the .NET Compact Framework and both assemblies adhere to the "small is good" principle for mobile applications.

As a GDI+ intensive component, Chart FX has been developed with coding practices that help improve screen redraw. This is particularly important when considering mobile applications where memory, CPU speed, and other resources are at a premium. Considering the small screen size of PocketPCs, they've made sure charts display well in a portrait rather than in a landscape

orientation and even the default Chart FX color palette has been changed to improve legibility.

Perhaps one of the main advantages Chart FX provides is a consistent API and Object model across all of the platforms

supported in their product line, including .NET, COM and Java. This means, developers can leverage their knowledge in a particular Chart FX product to move or port an application to a completely different platform.

As opposed to other vendors which are now providing first-generation offerings of their .NET Compact Framework products, Software FX has been building and offering charting components for Microsoft's mobile

environments for over a decade. With Pocket Chart FX for .NET you can expect a component with the right feature set, portability and memory footprint for your mobile applications. Visit [www.softwarefx.com](http://www.softwarefx.com)

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## News Briefs

## NEW PRODUCTS

The Apache Software Foundation has released **ObjectRelational Bridge**, or **OJB**, an open-source object-relational mapping tool that provides transparent transactional persistence for Java objects against relational databases. OJB provides ODMG and JDO interfaces. The project is at [db.apache.org/ojb](http://db.apache.org/ojb) . . . Embedded tools maker

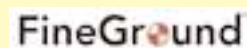


Aonix North America Inc. has added Java's Abstract Window Toolkit and Standard Widget Toolkit libraries to its **PERC VM**

embedded virtual machine. Those libraries are offered free to PERC VM users . . . Strikelron Inc., a Web services publisher, is offering **Do Not Call Premium**, a Web service that can check telephone numbers against federal, state and Direct Marketing Association do-not-call lists. The service is designed to help marketers comply with government regulations . . . CPT International Inc. has launched **Voice Harbor**, an outsourced hosting program for voice applications. The service is promoted as an enterprise alternative to building and maintaining the



infrastructure for running voice-enabled applications . . . The Finnish firm Davisor Ltd. is offering **Offisor**, a Java component for converting PowerPoint and Word documents into XML. The company has also introduced **Transformations**, which can convert those XML files into HTML, XHTML, XSL-FO, PDF, RTF and DocBook formats. Offisor costs US\$1,750 or €1,420 for one developer seat and one production server; with Transformations, it's US\$4,050 or €3,280 . . . FineGround Inc. has introduced **Enterprise Application Delivery Suite**, which automates delivery and management of Web applications. The suite encompasses application performance optimization, end-user monitoring and application security. Prices start at



US\$15,000 per server. FineGround also released **AppScreen Web Application Firewall**, designed to protect Linux/Unix servers against worms and other exploits. It will be available as either an appliance or as a Linux/Unix application, also starting at \$15,000 per server . . . To help developers build portlets for the **Vignette Application Portal**, Vignette Corp. has released a wizard-based plug-in for Borland's **JBuilder 2005**. The plug-in uses wizards to build portlets compliant with JSR-168, the Java Portlet Specification. Borland and Vignette have also introduced **Vignette Application Portal Borland**



**Developer Edition**, to be used while coding new portal software . . . 4D Inc. is offering **4D Macro Pack**, a set of add-ins for its 4th Dimension database. The free pack contains 17 macros to improve developer productivity, such as a tool to generate API documentation, transforming 4D methods into Web services methods, and generating scripts that can access COM objects from within the database . . . The French firm Digital Airways has introduced **Wapaka MIDlet**, a version of its Wapaka micro-browser that exists in the form of a Java component that can be integrated into a J2ME MIDlet. The component lets content providers offer customized access to their content from J2ME-equipped mobile phones . . . This month, Visual Numerics Inc. will release **C# Numerical Library**, a managed-code version of its IMSL numerical algorithms. Those routines had been available only for C, Fortran and Java.

## UPGRADES

OSTnet has updated its **AMS** asset management system. Version 2.0 now encompasses projects, asset versioning and workflow, as well as tighter integration into several SCM tools, including IBM's Rational



ClearCase, Microsoft's Visual SourceSafe and MKS' Source Integrity. OSTnet is compliant with the Reusable Asset Spec-

ification, and runs on Windows servers . . . Version 8.2 of IBM Corp.'s **DB2 Universal Database**, released last month, embeds the **CocoBase Enterprise O/R** object/relational mapping tool from Thought Inc., as well as a number of autonomic management functions . . . Aonix North America Inc. has updated its **TeleUse** Motif-based GUI development system to

► continued on page 23

# A First for JBoss: App Server Certified

## Open source server first to pass Sun's rigorous tests

BY YVONNE L. LEE

Less than two years following a public spat with Sun Microsystems Inc. over the difficulty in getting its open source application server certified as officially J2EE compliant, JBoss Inc. in September released JBoss AS 4.0, the first open source application server to win that certification.

"There were 23,000 tests that we passed," sighed CEO Marc Fleury. "It's gotten to be a beast. It's been a very big commitment to get it done."

In addition to the J2EE 1.5 certification, new features in JBoss 4.0, according to Fleury, include its use of J2SE 5 annotations for aspect-oriented programming. "We're using those annotations to simplify

the programming model. Then, we're using support for autocompletion of those annotations."

The Java Community Process released J2SE 5 in September.

JBoss AS 4.0 is being released under the LGPL, which Fleury said he believes is less open to forking than other open source licenses are.

### ON BOARD AT ECLIPSE

Separately, JBoss signed a pact to become a member of the Eclipse Tools Project and agreed to help build plug-in tools for that open-source framework.

JBoss has contributed to other open-source projects, Fleury said. "JBoss contributes the majority of code in [the

Apache Foundation's] Tomcat," he claimed.

In fact, he touted his company as being a "professional open source" company that could better support its customers and update its products than open-source efforts run by part-time or unpaid staff, or than corporations that contribute to open-source projects in addition to their other software offerings.

"Most companies are embracing open source because they have to," Fleury said. "IBM does Eclipse. When it comes to DB2 and WebSphere, it's not the case. For us, all of middleware is game, which is not the case with IBM. Others are doing it more tactically as it helps them." ■

# Instantiations Updates Auditing Tool

## More rules, report types and collaboration features

BY JENNIFER DEJONG

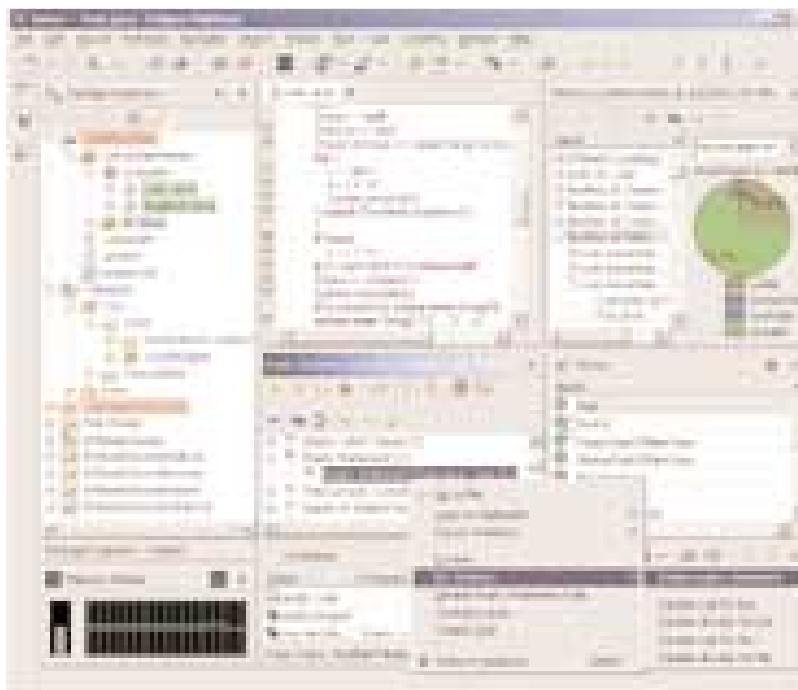
Instantiations Inc. adjusted its code auditing and build management offering last month, adding 100 new rules as well as new collaboration features and report types.

CodePro Studio 3.0 runs two to three times faster than the previous version 2.3.2, while decreasing the memory used, said Eric Clayberg, senior

vice president of product development for the Portland, Ore., company. The Eclipse plug-in, which also works with Eclipse-based IDEs such as IBM's WebSphere Studio Application Developer or SAP's NetWeaver, provides Java developers with code auditing and design pattern capabilities, as well as build management and team collaboration features.

CodePro 3.0, which costs US\$899 per licensed developer, adds 100 new auditing rules, including those that identify dead code and look for security violations. The tool's 450 rules address a range of Java issues, such as coding styles, naming and JavaDoc conventions, internationalization and semantic errors, among others, said Clayberg.

Also new is the ability to let geographically dispersed teams share information, such as sets of audit rules, in real time; a report type that lets developers generate documentation from a set of audit rules, and a feature that lets them designate on a project-specific basis which parts of their code they don't want audited. "When you're auditing tens of thousands of lines of code, there is a lot of code [such as that belonging to third parties] that you don't care about," Clayberg said. ■



Instantiations claims CodePro Studio can detect and correct audit rules violations.



## Oracle Application Server

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*Network Computing, 5/13/04*

	Oracle AS 10g Portal	IBM WebSphere Portal 6.0	Microsoft Office Share Point Portal Server 2003	BEA WebLogic Portal 6.1
Customization (30%)				
Development framework (20%)	5	3	3	3
User personalization (10%)	4	4	4	2
Integration (30%)				
Collaboration/productivity (10%)	4	4	4	4
Portal integration (10%)	4	4	4	4
Identity management (10%)	4	4	4	4
Search/document management (10%)	4	4	4	4
Architecture (20%)				
Framework (5%)	4	4	4	4
Implementation (5%)	4	4	4	4
Manageability (5%)	4	4	4	4
Standards (5%)	4	4	4	4
Security Features (10%)	4	3	3	2
Price (5%)	5	3	3	4
<b>TOTAL SCORE (100%)</b> <small>Total scores and weighted scores are based on a scale of 0-5.</small>	<b>4.25</b>	<b>3.45</b>	<b>3.40</b>	<b>2.70</b>

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Source: Network Computing, 5/13/04, Well-Connected Awards, p. 82



# Gupta Brings Its SQLBase 9.0 to Linux

## Claims to allow Windows ISVs to port their server component

BY JENNIFER DEJONG

Touting the merits of moving to Linux, Gupta Technologies LLC announced its first offer-

ing for the open-source operating system last month.

The Redwood Shores, Calif.-based company announced

SQLBase 9.0 for Linux, which lets users of the Windows edition of its relational database take SQLBase files running

under Windows and port them to Linux, said Chuck Stevenson, Gupta's chief technology officer. The offering, which starts at

US\$70 per seat, lets ISVs and others who use SQLBase "swap out to Linux" the server piece of their Windows applications, while the client still accesses the application under Windows. "It lets customers take advantage of Linux on the server side," Stevenson said. "They are trying to get some relief from the virus and other security problems that are occurring under Windows."

Of course, the product can also be used to develop applications that run on a Linux desktop. But to date, Linux has made inroads primarily on the server side, noted Stevenson. "Linux has 20 or so percent of the server market."

Stevenson claimed that moving the server to Linux reduces total cost of ownership by increasing performance and reliability. But he acknowledged that Gupta has not calculated the actual dollar savings. "The fact is, under Linux, user security is far tighter than it is under Windows," he said. "Microsoft has been working over the past year to plug the many security holes they have. In the Linux environment, you don't have to worry about that."

Compared with one of its top competitors, Sybase's iAnywhere Solutions Inc., the 20-year-old Gupta is late to the Linux game. iAnywhere has offered Linux versions of its SQL Anywhere product line since 1999, a company spokesperson said. Although SQLBase is a player in the application-specific space, it is also used as a primary database by companies with 200 or fewer employees, Stevenson said.

Gupta also announced that it expects to make available in November Team Developer 2005, the next version of its 4GL development environment, said Stevenson. Available in both Linux and Windows versions, Team Developer will let developers simultaneously support both operating systems with a single code base. The Linux version is aimed at customers who want to develop manufacturing, point-of-sale, and pharmaceutical applications. "They don't care about Windows on the desktop," he said. ■

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# Laszlo To Take the Open-Source Route

## Will release 'rich client' presentation server and other assets, sell support, by year's end

BY DAVID RUBINSTEIN

Saying that the adoption of its "rich client" application software has been slower than anticipated because of the economy, Laszlo Systems Inc. announced last week that it is releasing its upcoming Presentation Server Enterprise Edition 2.2 as open source.

CEO Stephen Ciesinski said he expects the 3-year-old company's open-source initiative to happen by year's end, noting that the company's still working out the details of the software's license. He said he expects the system to be licensed under IBM's copyrighted Common Public License, under which the Eclipse project was begun. Ciesinski explained that the CPL is a reciprocal license that requires changes to be turned back into the community.

The goal of the move is to "drive the widespread use of rich-client applications," he said. "The knock on early-stage companies is will it be around? Is there interest in the work?"

Added co-founder and CTO David Temkin, going open source gives customers comfort that the company and technology are stable. "Putting aside the rhetoric [about open source], it's a workable and beneficial process."

Ciesinski pointed out that from a business perspective, it is increasingly difficult for a small company to make a mark, as it takes a lot of capital to build out an engineering organization.

"As an early-stage company, we have to be more creative and savvy to get to market and to get people contributing." Going open source, he said, removes the price barrier for big companies to work with the technology, and shifts the company's business model to generating revenue from support, training and educational services. Ciesinski said companies such as PeopleSoft and IBM have shown that substantial revenues can be generated from offering services.

Laszlo's software, Ciesinski said, provides a rich interactive "one-page experience" for users, making the argument that HTML pages are fine for looking at content but it is the wrong way to provide applications. The server delivers Lasz-

lo's proprietary but soon-to-be-open LZX language-based content into any browser with a Macromedia Flash plug-in, he

said. Macromedia is among the other companies building out this market. Among the new features in Presentation Server

2.2 are a SOAP connector, the ability to invoke Java objects into the client from a Java server and an XML RPC connector.

"So we'll be open source and Macromedia will be proprietary, and let the market figure it out," Ciesinski said. ■

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# Wider Acceptance is Pride of Open-Source Community

◀ continued from page 1

PHP or Python has [drawn] all these subcommunities closer together than they were ten or even five years ago."

Raymond said the movement's leaders—himself, Richard Stallman and the Free Software Foundation, and Perl creator Larry Wall, among others—are happy with the general direction. "As we sometimes like to put it, the sinister master plan for world domination is right on schedule." He cited figures from Netcraft Ltd., which tracks Internet server platform usage, that shows Linux is the leading server operating system with about 18 million active servers. "We have owned the Web for years. There are at least two important industry verticals in which open source has recently

and that you're partially responsible." And the General Public License (GPL) that governs Linux and other open-source projects, he said, flip-flops the traditional burden of proof. "Typically, the burden is on the [recipient] to prove you gave your [intellectual property] to him. With the GPL, the burden of proof is on the developer to show software was given away without permission."

## CORPORATE DIRECTION

According to Bill Weinberg, open-source architecture specialist with the Open Source Development Labs (OSDL), about 70 percent of open-source developers are employed by companies doing Linux or other open-source development.

Weinberg asserts that such

gic marketing at embedded Linux vendor Monta Vista Software, said he often witnessed developers working at cross purposes. "During my time at Monta Vista, there were open-source developers engaged in work on the Embedded Linux development kit, that were almost completely contrary to Monta Vista's own commercial tools business. But because it was core community work, they were not discouraged from doing so."

Indeed, it seems a universal faux pas to mess with the intentions of open-source developers, according to Weinberg. "Many have told me that if their employers were to send them in directions that were contrary to the interests of the community, they would immediately seek employment elsewhere; this is generally known to the employers." Weinberg claimed that OSDL, which employees Torvalds, influences the direction of Linux development only by means of its kernel contributions. "We pay his salary; we don't give him his marching orders."

Laszlo CEO Stephen Ciesinski said it's more or less expected that some Laszlo developers will spend time on weekends contributing to other projects, but he does not accept the fact that developers dictate to business executives what they're working on and when they will work on it. Ciesinski sees open-source groups as "one more constituency that we have to appeal to," along with investors, clients and employees. He said that similar to open-source browser project Mozilla, the Laszlo project's direction will be steered by the company's board of directors. "We're still working out how to manage it, but it won't be a free-for-all."

Like Laszlo, more and more companies are embracing the business model of giving their software away for free to get it into as many seats as possible, opening the source code to get as many as people as possible working on it, and then charging for support, training and other services.

Another driver for small companies to open-source their products is cost. First, it reduces a major barrier to product acceptance. Second, it reduces

the company's cost of development. Ciesinski pointed out that from a business perspective, it is increasingly difficult for a small company to make a mark, and it takes a lot of money to build out an engineering organization in the United States. "As an early-stage company, we have to be

panies using Linux and other open-source technologies.

Bernard Golden, CEO of Navica, an open-source consultancy, also believes that corporate involvement has introduced change. "We've seen these waves of technologies before. Most start out as being a brainchild of passionate people that are not concerned with commercial success per se. But they get picked up and expanded by a commercial organization. But they also get transformed."

Golden cited PCs, Unix and the Internet, as

examples of projects started by passionate people that wanted their technology to be used but didn't necessarily expect large commercial offerings to result. "In the 1980s, Unix went from guys in sandals and tee shirts to guys in suits." The pattern repeated for Linux in the 1990s. "As we work with open source, some of it works really well and some is kind of ragged." Golden developed the Open Source Maturity Model, which he explains in his book "Succeeding with Open Source."

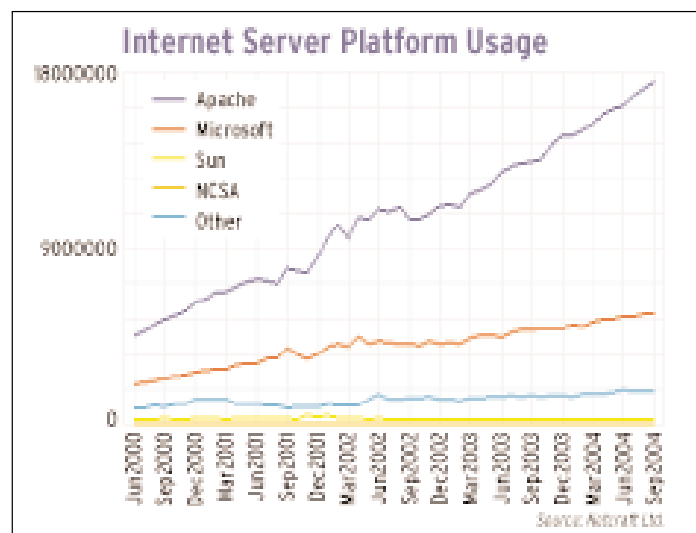
## PHENOMENON GROWING

The open-source movement, according to Raymond, will only continue to expand. "I think we'll see more concentration and pooling of effort through things like sourceforge and other collaborative development sites," said Raymond, adding he believes the industry will see more umbrella projects, such as Eclipse and FreeDesktop.org, that exist to coordinate several related development groups. "FreeDesktop has the aim of supporting better desktop applications and helps develop interoperability standards and tests so that different pieces of the desktop puzzle make one whole instead of clashing with each other."

"I think open-source is here to stay," admitted Enderle, and believes it's in a vetting period while people discover where it works and where it does not. "It's like client/server in the early 1980s, where people said it was good for everything. We now know it's only good for some things. The question is where to draw the line; that's what we'll be exploring for the next five years." ■

*As we sometimes like to put it, the sinister master plan for world domination is right on schedule.*

—Eric Raymond, co-founder and president of the Open Source Initiative



crossed the chasm from early-adopter to early-majority status: financial services and film production. And increasing adoption by governments is leading the way to the desktop, especially outside the U.S."

## PROBLEMS REMAIN

Rob Enderle, principal analyst at high-tech consultancy Enderle Group, warns that open-source participation can backfire, particularly for companies seeking to protect their work. "There are certainly two sides to this. Yes you can get access to source and see how it works, but so can everybody else and that gives you less ability to protect your intellectual property."

Another danger, Enderle said, is that of shared liability. "If you tried to go after a software vendor who made a mistake and did you damage, that vendor could argue in their defense that you too got to see all the code,

statistics do not necessarily indicate that corporate developers are simply extensions of their employers. "A number of developers of note have been insistent to me that their community activities proceed on a parallel path with their employers' corporate interests—not necessarily in contention with those interests. But they don't view their involvement in open-source as an extension of their corporate selves, they view their employers as sponsoring community work."

"That would be unfamiliar territory to us," said David Temkin, CTO and co-founder of Laszlo Systems Inc., which earlier this month announced it will release the enterprise edition of its Laszlo Presentation Server rich-client platform to the open-source community. "Everyone here is focused on advancing Laszlo's project and wants to see broad adoption." Yet Weinberg, formerly vice president of strate-



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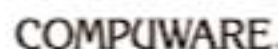
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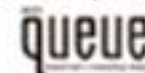
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# Mercury Rises In Process Testing Market

← continued from page 1

designers and developers to spec out a system, to define business processes for the application. That drives the design spec, and then the development process. Compa-

nies do testing during the development phase, testing functionality of components, and test scripts are created to automate those tests. The fourth piece to the life cycle is to allow the business process

designer to take ownership of the validation of the process before the app goes live."

Business Process Testing is a component of Mercury's Quality Center suite, which includes the company's WinRunner,

QuickTest Pro, TestDirector and Delivery Dashboard, Lochhead said.

In an organization using these tools, QA engineers would write scripts in a modular way, building the element

once for multiple uses, as business analysts see the tests in Business Process Testing as graphical steps in a process. "An analyst would see 'create purchase order' as a screen shot of what the code would produce, and that analyst could test it without ever knowing scripts" by using drag-and-drop capabilities, Lochhead added.

Business and IT share the responsibility for applications doing what they're supposed to do, Lochhead asserted. "The quality and availability of the software is the quality and availability of the business," he said.

## WALLS COMING DOWN

Performance engineers and QA managers believe the wall separating them from developers was higher 24 months ago than it is today, according to a survey Mercury did of its LoadRunner customers in mid-September.

The role of system architects also is becoming more prevalent horizontally as their influence expands across the application life cycle, according to the study of 450 respondents.

"The performance testing market has changed significantly," said Mercury's Rajesh Radhakrishnan, senior director of product marketing, citing three factors for this change. First, he said, 80 percent of the respondents said they are testing more applications than they ever did before, so there is a heightened awareness of performance testing. Secondly, different people now are involved in testing, not just test engineers. Finally, outsourcing of testing has had a big impact. "Quality is becoming more strategic to customers," he said. "Developers say their visibility to the business side in companies is much higher."

When asked how frequently they test, 71 percent of those who responded said the frequency is increasing. Further, 85 percent of the respondents indicated they are testing new applications, while 72 percent said they are testing major upgrades, and 40 percent are testing patches and service pack upgrades. Another 39 percent indicated they are performing re-tests during hardware and software integration initiatives. Finally, 76 percent said the number of projects selected for testing also is on the rise. ■

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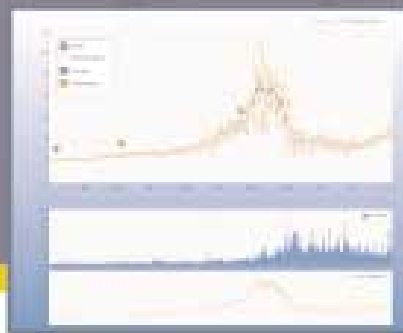
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# Compuware Plans Updates To Stay Ahead of Microsoft

◀ continued from page 1

In addition, Compuware offered a glimpse of the next version of DevPartner Studio Professional Edition. Unlike the current version 7.2, the next release will offer actionable advice on how to improve applications.

The new version will advise, for example: "This line of code is performing poorly because you are creating too many .NET temporary objects. Consider doing this in a recursive fashion, instead," said Varhol, noting that the more objects a developer creates, the harder the garbage collector has to work. The release is timed to coincide with Microsoft's delivery of Visual Studio Team System, promised for late next year.

The "actionable advice" theme will extend to the two new DevPartner offerings as well, Varhol said. The application security tool will analyze static source code and also simulate attacks on running code, providing advice on how best to close the security hole.

## AUTOMATED BUILD STUDIO BULKS UP

BY DAVID RUBINSTEIN

Automated QA is adding muscle to its build.

Version 1.1 of Automated Build Studio, which the company calls its build and release configuration management tool, is due out this month with more operations being added to the 150 already built in to the tool, according to chief executive Robert Leahey.

While Automated Build Studio is a visual interface for building macros, Leahey said the emphasis is on the release portion. "You can have multiple configurations of the same macro, with all states streamed off for each release," he said, noting that demo, debug and release versions all can be created from the same macro.

The new release focuses on Microsoft's .NET Framework, and is fully integrated in Visual Studio .NET, Leahey said.

Supported operations for .NET include NUnit tests and code obfuscation, and the studio also supports all Visual Studio .NET compilers. Automated Build Studio also allows for scripting and has an open API for creating custom operations, he added. ■

The tool to test error-handling code will simulate events such as dropping the network connection, as well as out-of-memory and low-disk-space conditions. "We are giving developers and testers a way to

consistently repeat an error, so they can test [the error-handling code] as they go," said Varhol. "Hackers look for error-handling code as a way to get into the application, so you have to make sure applications

can handle those attacks."

Vendors such as Fortify Software Inc., Kavado Inc., Sanctum Inc., which was acquired in July by Watchfire, and SPI Dynamics Inc. sell application security tools similar to Compuware's

planned offering. Varhol claimed that no vendor currently offers tools for testing error-handling code, but a spokesperson for SPI Dynamics said the company's Secure Objects offering provides that capability. ■

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# Telelogic Tightens Ties to Mercury

## Builds out DOORS, Synergy integrations to TestDirector

BY DAVID RUBINSTEIN

Telelogic AB earlier this month enhanced the integrations between its DOORS requirements and Synergy change management products and Mercury's TestDirector, to bring together different teams working on a project and provide managers with greater visibility into the work, the company said.

This role-based approach is part of Telelogic's overall strategy of requirements-driven development, according to Andy Gurd, the company's director of product launches. "Users don't want to have to switch tools to see which requirements they're testing," he said. "They don't want to follow a link to a requirement in another tool. The synchronization between

the tools is straightforward."

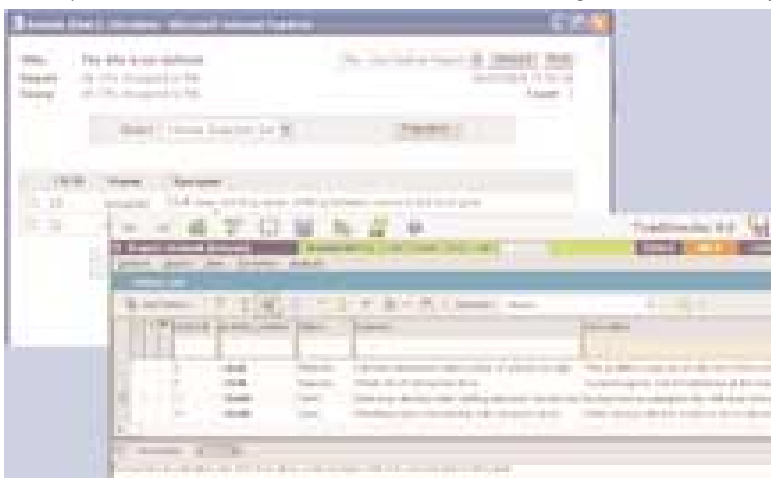
Gurd explained that a business analyst can write a requirement in DOORS that is made visible to test engineers using TestDirector, who can then write test plans and set up traceability. When the tools are re-synched, the test information is pushed back into DOORS so analysts and project management can get the full picture of the project, to learn if all the requirements have been covered by tests.

Similarly, Synergy provides a single point of change control for requests coming in both from within and outside the organization, Gurd said. The change request can either go back into DOORS for analysts to determine if the change fills a business need, or a manager can sim-

ply assign the work out to a developer or team. It also can be pushed into TestDirector for the creation of a new test plan. If the test fails, test engineers can provide visibility to the test report in the other tools, he explained.

"We looked at the process these groups follow and tried to map them" through the integration, Gurd said. "For instance, a development team might have a different cycle, or use different names and states for changes. We have the ability to map states from Synergy to TestDirector, and make sure only the ones that make sense [to that user group] are visible." All of this, he said, gives managers a much clearer picture as to the status of a project, and helps in the planning of releases.

Although Telelogic sells test tools in its Tau family, none overlaps the Mercury tools, which are widely used in the industry, Gurd said. "It was pragmatic for us. Mercury is extremely dominant in this area," he said. DOORS with the new integrations sells for US\$2,200 for a single license; the Synergy suite—which includes both configuration and change management tools—is \$2,550 for a single user. ■



Defect reports can be synchronized in Telelogic Synergy and Mercury TestDirector.

# MKS Enhances Tools for Eclipse, .NET

BY JENNIFER DEJONG

SCM vendor MKS Inc. deepened its commitment to IBM's and Microsoft's development environments last month—and offered a glimpse of additional product updates it expects to deliver by January of next year.

The Waterloo, Ontario-based company announced the integration of its process and workflow management offering, Integrity Manager, with Eclipse, Visual Studio and WebSphere Studio Application Developer. Later this year, it plans to integrate that same offering with Telelogic AB's requirements management tool, DOORS, and with Mercury Interactive Corp.'s testing tool, TestDirector. In addition, MKS plans to deliver its own requirements management tool this year, and by January will

launch the next version of its MKS Integrity Suite.

"We have supported Visual Studio and Eclipse/WebSphere for many releases, in terms of [change management tool] Source Integrity, but now we are adding the process management piece," said Colin Doyle, product manager for MKS Integrity. Process management refers to tasks such as change requests or defect tracking. Using the MKS "WorkTray," developers on distributed platforms can receive, review and update work assignments, known as tasks, without ever stepping outside of their development environment, Doyle said.

Although some MKS customers also use Integrity Manager to document a project's requirements, it was not designed to handle heavyweight

requirements management, said Doyle. MKS's plan to integrate Integrity Manager with Telelogic's DOORS will address that need.

When a developer updates a field that maps to a requirement, that field will be automatically propagated to DOORS, said Doyle. Conversely, if requirements change, those changes will be propagated into Integrity. That lets the developer know: "This task is suspect. You better stop. The requirements have changed," he said.

Integrity Manager will integrate with Mercury's TestDirector in a similar bi-directional way, said Doyle. "Unlike Borland, Microsoft, and IBM, we don't offer soup to nuts," he said, referring their respective lifecycle development strategies. "We offer core infrastructure." ■

## News Briefs

### MORE UPGRADES

← continued from page 12

work with Red Hat Enterprise Linux 3.0 and Fedora Core 2.0. TeleUse, which also runs on Unix and Windows, costs US\$5,000 per seat . . . LogicLibrary Inc. announced that the .NET version of its **Logidex** asset management system now integrates with Serena's **Dimensions** for .NET, a Windows-based change management platform. Separately, LogicLibrary had added a Federal Enterprise Architecture library in its online **Logidex Asset Center**. The read-only library includes the FEA's Business Reference Model, Technical Reference Model and Service Component Reference Model . . . Macromedia Inc. has released a port of its **Flash Player 7** for Solaris . . . Version 1.5 of **Superior SQL Builder**, a no-code SQL script generator from Red Earth Technologies FCN, adds new features for simplifying the script-building process. The US\$349 Windows-based utility now supports MySQL 4.1, in addition to Oracle DB and



Microsoft's Access and SQL Server . . . India-based Vishwak Solutions Pvt. Ltd. has updated its **EasyStruct** database structure documentation and migration tool for Windows. Version 4.5 generates entity-relationship diagrams for each database, and now can document dependencies of views, stored procedures and triggers. The US\$299 software can now also generate reports in XML and Microsoft Word formats, as well as HTML . . . Seque Software Inc.'s **SilkPerformer 6.6** load tester now integrates with Borland's **Optimizelt ServerTrace** performance analysis software. The integration lets developers and testers see the specific lines of code that stress server performance . . . Vista Software has released **VistaDB 2.0**, an enhancement to its Windows and .NET database that adds native VCL support for Borland's Delphi and C++ Builder. VistaDB, which had been called Apollo until 2001, is an Xbase-compatible database that includes an SQL-92 query processor and an ADO.NET Data Provider . . . Zero G Software Inc. has introduced new pricing options for its installer software. The **InstallAnywhere Pro Bundle** includes the company's standard-edition Windows and .NET installers for US\$1,398 per seat; there's also an **InstallAnywhere Premium Bundle** with the enterprise-edition versions of the software for \$3,198. Zero G says this is \$1,000 off the regular retail price of the Windows and .NET installers, if bought separately . . . Software Tree Inc. has updated its **JDX** object/relational mapping software for Java. Version 4.5 adds a new feature called OneClickRevolution to JDXStudio, the mapper's IDE, that presents relational data in a graphical format. The new release also adds an object cache. JDX costs US\$1,495 per seat . . . Mocana Corp. has added broader cryptography features for its **Embedded Security Suite**, a set of source code libraries. It now supports mutual authentication and simple certificate management for SSL/TLS Client and Server, as well as keyboard interactive authentication for SSH Server. The suite runs on a variety of embedded processors and operating systems.



### PEOPLE

KeyLabs, a consulting company focused on compliance testing for hardware and software, has hired **John Homer** as its COO. Homer had been EVP and COO with O.C. Tanner Co., a consultancy that provides employee-recognition programs . . . The Component Vendor Consortium, a trade association, has elected **Mike Sax** as its president and chairman. Sax, who owns Sax Software Corp., replaces Lead Technologies Inc.'s **Rich Little**, who had been president of the CVC since 1999 . . . **Eric Andrea** has joined component maker Infragistics Inc. as director of strategic relationships. Andrea had previously been a Microsoft evangelist and group manager working to promote Windows, .NET and Longhorn to the ISV community.

### STANDARDS

The Object Management Group Inc. and Health Level Seven Inc., an ANSI-accredited organization focused on health-care data standards, are collaborating on developing specifications for **electronic drug prescribing and patient record interoperability infrastructure**. ■



# Sybase Promises 'No New Code'

## New tools let unwired mobile browsers access enterprise back ends

BY EDWARD J. CORREIA

Building on technology it purchased with AvantGo Inc. in early 2003, Sybase Inc. earlier this month released a pair of products it claims permit developers to extend Web-enabled apps to browser-based mobile devices without new code or changes to the original application.

Unwired Accelerator is a US\$8,700-per-processor bundle for Linux, Unix and Windows servers consisting of a mobile portal server and the

company's Mbusiness Anywhere Server (formerly the AvantGo server). The middleware formats and feeds data to connected and disconnected clients. Also included is Mobile Web Studio, a Windows-hosted environment for building interfaces between mobile devices and back-end systems.

According to product manager Sean McCleary, Unwired Accelerator simplifies the delivery of virtually any data source to RIM's Blackberry, smart-

phones and other mobile communicators running Palm OS, Pocket PC, and Symbian OS, or to desktop and laptop PCs.

"It takes legacy information like Web applications, [data from] Web sites, portals, Web services, XML documents and databases and repurposes them so they can reside on mobile devices," he said. A detection layer identifies the device requesting the data and invokes the appropriate template to format the output. "Users also can

modify these templates with a visual editor, and under the covers, we create highly complex XSLT."

McCleary asserted that a key benefit of the Unwired Accelerator is the complete absence of programming, either to the source application or the interface to access it. "Business analysts can do this. All our competitors require extensive programming changes to the application. We use the existing application unchanged."

What's more, McCleary said that with the exception of disconnected or occasionally connected devices, which require the Mbusiness (AvantGo) client to sync and display data, there is no deployment of applications to the device. "It's a headache for IT departments to manage deployment of applications on the multitude of devices out there. We use a Web-based architecture."

Security is provided through support for SSL, single sign-on and LDAP and Active Directory authentication. "We also provide roles-based authorization and can work within any existing security framework, such as Integrity or Obliv," he added.

### UNWIRED ORCHESTRATOR

Once back-end connections are established, developers can expand functionality with Unwired Orchestrator, a \$13,500-

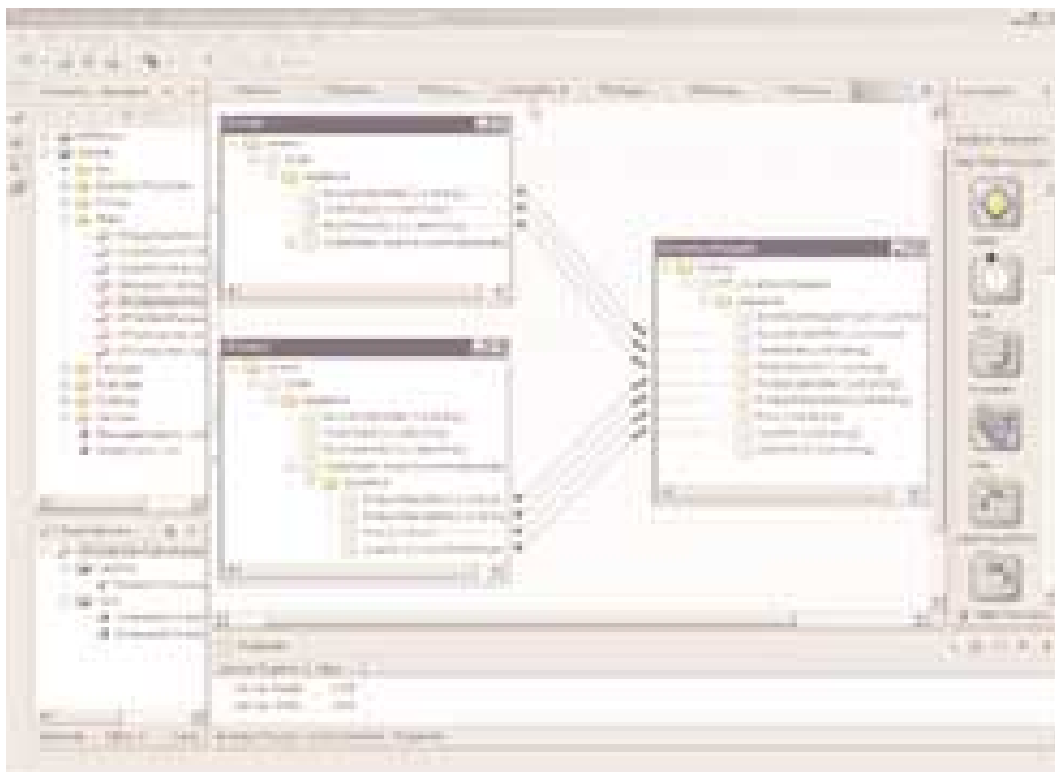


The tools bridge the enterprise and an ever-more mobile edge, says Sybase's Schaub.

per-processor middleware bundle for Linux, Unix and Windows servers that includes a set of Eclipse plug-ins for building deeper integrations and adding additional business processes.

"The tools are a bridge between what's going on in the enterprise and what's at the increasingly mobile edge," said Kathleen Schaub, vice president of marketing for Sybase's Information Technology and Solutions Group.

According to Neil McGovern, the group's director, the people at the company's iAnywhere mobile solutions subsidiary stimulated development of the Unwired Orchestrator, an offshoot of its enterprise counterpart. "They discovered that as their users developed more complicated mobile applications, they needed full-blown integration technologies, which is what Sybase has with Integration Orchestrator. We've now exposed that capability to the mobile side of the business." ■



Unwired Orchestrator includes Eclipse plug-ins for creating business processes for mobile deployment.

# Artisan Paints Picture of Reusability

## Claims UML 2, SysML features in Real-Time Studio 5 facilitate code reuse

BY EDWARD J. CORREIA

Artisan Software Tools Inc. has added new features to its Real-Time Studio modeling software to support the UML 2.0 specification and to embrace SysML, a new specification for modeling the hardware requirements of embedded systems.

The company says that Real-Time Studio 5, which can generate C/C++ and Java code, is better suited to hardware modeling and offers more code reusability. It sells for between US\$4,000 and \$10,000 per seat.

Alan Moore, Artisan's vice president of product strategy, said the improved structure diagrams in UML 2.0 benefit hard-

ware designers by allowing for more deeply nested structures, which enables better system-to-system communications. "You can start a system with parts that are themselves systems," that can break further into subsystems, something that he said prior versions of UML were not good at representing.

UML 2.0 also introduces the notion of encapsulation, which Moore said permits the addition of ports to the boundaries of systems, which define the type of communication possible across those ports and can constrain system interactions. "You can plug a new component in if it's got the same ports profile as the

original component. This makes it easier to reuse [code] because you know what the interface is and how to support a particular component."

Moore said this concept, sometimes known as plug substitutability, is far more difficult to achieve in the object-oriented world of UML 1.x's classes and services. "It's hard to define very complex components that way because everything has to go through a single interface."

Another UML 2.0 benefit is the ability to connect elements to each other. "Within an overall structure, you can drop in one structure that's got ports, and another that's got ports, and con-

nect them together, without either element knowing it's connected." He said that in essence, this serves to more easily build decoupled systems. "With UML 1.x that wasn't possible. It's all about reusability."

### SYSML FILLS UML HOLES

Although UML 2.0 delivers significant advances, Moore said that hardware engineers realized it still fell short in some areas relating to hardware design, specifically in its ability to describe the laws of gravity, friction and other areas of physics and of physical systems. "A lot of a system engineer's work is about battery life

and power supplies. UML 2.0 is still oriented around software design."

Intended to solve that problem is the Systems Modeling Language, or SysML, an extension to UML defined by hardware engineers that fills some of those voids, adds requirements management and according to Moore supports systems that process continuous data or input, such as those controlling liquid or electrical flows. "These systems need a completely different set of algorithms than software systems."

Currently in version 0.8, SysML is being developed by a consortium of systems engineers working with the International Organization for Standardization (ISO) and Object Management Group. Moore said adoption is scheduled for February 2005. ■



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# Think Like a Customer, Use Your Stopwatch

Hands-on developers give their opinions of the various performance optimization strategies

BY GEOFF KOCH

**S**oftware performance tuning can get downright emotional. When their code isn't working right, you might almost see programmers cry, or swear. Maybe both.

Often behind this empathy, however, is a cool and clear-eyed assessment about what it takes to tune and optimize software. Tools for profiling and debugging code can help, but many experienced developers still lean heavily on common sense and simple techniques.

One of these techniques is to stop tuning when the effort is no longer worth it. Another is to think holistically, even while delving into the minutiae of an optimization project.

As a software scientist at Adobe Systems Inc., Rich Gerber spends much time in minutiae—so much that he still regularly writes in assembly language. But his performance testing of Adobe Premier often doesn't involve sophisticated tools or arcane knowledge.

"I just use the application the way a user would while using the simplest of all tools—a stopwatch," said Gerber. Much of his time is spent trying out the MPEG encoder or filter, just as any

video enthusiast might.

Gerber concedes that he does use some of Adobe's own testing and instrumentation tools, as well as products such as Intel's VTune Analyzer, to see which parts of the application are running slower than the rest.

Tuning can be as simple as turning on compiler flags and seeing what happens. "Sometimes, that gives you the performance you are looking for and you're done," he said.

When you still need more performance, changing the algorithm or optimizing for some of the newer processor instructions, such as single-instruction multiple data (SIMD), will boost things even more.

While working on tuning tasks, Gerber and his team of developers avoid tweaks that will be too difficult to maintain in the future. "Avoid creating unmaintainable code in the name of performance," said Gerber. "If the original author gets hit by a bus, you want to be able to make changes."

## FOCUSING ON USERS

Musicmatch Inc.'s Randy Camp agrees that keeping a sense of proportion and



*If I don't take these external resources into account, I can end up having cascading performance effects in the application.*

—Philippe Lantin, system architect for The Cobalt Group

balance is important. "We have to be sure that we are addressing the most used parts of our product and that we are focusing on the slowest parts, instead of the parts that are just easy to optimize," said Camp, vice president of software research and development at the company, which Yahoo Inc. agreed to buy last month for US\$160 million.

When the focus is desktop software, bottlenecks are usually easy to spot. Users expect a high level of performance, and sluggish response times are obvious to anyone clicking around in the program. Even though desktop software vendors are managing larger data sets and offering more features, ever-faster PCs can more than keep up.

On the server side it's a bit trickier. Code has to be tuned in the lab based on best guesses. Once deployed, the application's performance must be continually monitored since the server load is not always predictable.

At Musicmatch, this monitoring is a pillar of the company's ongoing optimization efforts. "If our Web site or Web services that are used by the desktop products are sluggish, all of a sudden our users have a bad experience," said Camp.

Sluggish code and surly customers can be costly. So when faced with a bottleneck, the first step for Musicmatch is to localize it. Having an application that's well-factored and decomposable can make it easier to track down the subsystem causing the slow performance. The less code to instrument and profile, the better, said Camp.

Next, Musicmatch measures the existing performance of the target subsystem to create a reference so its developers know how much they're really improving things when they make changes later. "A unit test or other exerciser code is very useful here,"

said Camp. "We want to be sure that we are measuring exactly the same operation every time."

Finally, Musicmatch coders use a profiling tool to measure in detail where the time is being spent in the problem subsystem. Based on what they see there, they take one of two actions.

"If there's an outlier—a function or other segment of code that's taking a lot more time than the code around it—we attack that particular segment," said Camp. "If, on the other hand, none of the code in the subsystem appears to be out of line, then we need to scratch our heads and ask ourselves if there's a way we could redesign the whole subsystem so that it will perform better."

## STAYING RESPONSIVE

Looking at wholesale redesign of underlying subsystems is a first step for some developers. Roy Goncalves, chief technology officer of Canada-based Info Touch Technologies, which provides Internet kiosk security and management software, said algorithmic optimization is now the centerpiece of his tuning efforts.

Algorithmic optimization looks at altogether new ways to accomplish a task. This is a sharp contrast to making incremental improvements to existing code—what optimization means to most people.

For example, in a distributed application you may spend hundreds of hours to increase performance and throughput by 20 percent by optimizing code. Or you could spend a quarter of that time imple-

## IMPROVING AT DIFFERENT SPEEDS

There's more to performance tuning than tweaking code. Hardware matters, too.

All hardware is getting faster, but the individual components are speeding up at different rates. For a long time now, CPU performance has improved faster than both disk speed and the speed of main memory (RAM).

"Whereas it used to take two processor cycles to pull a word from memory, now it might take something like 80 cycles," said Stanford University computer scientist, Alex Aiken.

Compared to a decade ago, today it's much more expensive to go out to disk and main memory; increasingly the bottleneck's in database throughput transactions, according to Aiken.

These trends matter to server administrators such as Rusty Jackson, who administers the software configuration management system used internally at Symantec Inc.

SCM applications, said Jackson, are as dependent on hard disk speed as on the processor for performance. "Using a drive subsystem based on a SAN solution helps," said Jackson. He uses a cluster of four host bus adapter cards, each capable of 2GB/sec, to provide higher bandwidth than direct-attach storage cards. The SAN controller is capable of around 140,000 operations per second, he said.

Jackson has become enough of a disk junkie that he helped to select and set up the RAID 0+1 mirror configuration currently attached to the SCM server.

This particular hardware obsession supports a massive software development operation. Jackson's SCM application is the lifeblood of around 1,400 24x7 Symantec users and stores 600 GB of next-version data. "It's well over 4 million files," he said.

—Geoff Koch







Lantin, system architect for The Cobalt Group, an application service provider that caters to car dealerships.

Lantin manages a well-tuned, three-tier application stack. Sandwiched between Cobalt's presentation layer for

**Developers can take knowledge of today's processor and memory technologies to roughly calculate maximum performance.**

—Rich Gerber, software scientist at Adobe Systems Inc.

static content, such as images, and its back-end Oracle database, is a middle tier to serve and sort dynamic content. This mid-tier runs on the BEA's WebLogic platform and takes full advantage of Enterprise Java Beans, Java Server Pages and servlets. And it utilizes a persistence layer for maximum performance.

Despite these technologies, the mid-tier is one of Lantin's big pain points, and the reasons are mostly outside of his control. It's the place in the application stack that hooks into a slew of external resources, from major automobile manufacturers to direct marketing firms.

"If I don't take these external resources into account, I can end up having cascading performance effects in the application," said Lantin. He spends a lot of time fiddling with timeouts and monitoring negotiated service level agreements. Hardly extreme coding, but it is extremely effective in managing the performance of Cobalt's hosted services.

Managing performance of a development team means more than tips, tricks and tools for optimization. The best coders also know when to terminate their tuning efforts.

Adobe's Gerber addresses when to stop tuning in his 2002 book *Software Optimization Cookbook: High-Performance Recipes for the Intel Architecture*, published by Intel Press.

The important idea is to know how close you are to your code's theoretical maximum performance—what Gerber calls the speed of light.

"Just as we know that rocket ships

cannot travel faster than the speed of light, Star Trek excluded," said Gerber, "developers can take knowledge of today's processor and memory technologies to roughly calculate maximum performance."

Suppose you want to find this maximum for a video filter that loaded a frame, did a complex math operation, and then stored the frame. First, strip the algorithm down to the basics—load a frame's worth of data, execute a divide or some simple but representative operation, and then store the data. Next, ask "if this was as perfect as possible, how fast would it be?" said Gerber.

One caveat: before relying on your speed-of-light calculation, make sure that the compiler is doing what you expect it to be doing. Sometimes, the compiler optimizes its way to shortcuts, changing what you are really trying to test.

Scratching out these calculations involves nothing more than a bit of core math. If the speed of light isn't fast enough, then change the algorithm.

Gerber said one such calculation recently helped him think through optimizations to minimize feathering of an image's edges in Premier's rotation function. The underlying in-place operation, source A over source B, was 100 times slower than its speed of light. So there was lots of room for performance improvement.

"On the other hand, if you're already 99 percent of the way there, it is probably time to work on something else," said Gerber.

Confronted with a hypothetical choice of his own, Info Touch's Goncalves will pull the plug on code-level tuning far sooner than on algorithmic optimization. He said that with the exception of games and real-time systems, optimizing code quickly leads to diminishing returns. "Each incremental improvement will require more effort and thought than the previous one, with the result often being wasted effort," said Goncalves.

Since attempts at algorithmic optimizations are more likely to yield exponential performance boosts, cost savings, or even new products, Goncalves said he

► continued on page 28

menting a concept like data caching and increase performance by 200 percent.

Info Touch has deployed many large networks of public Internet kiosks that are in constant communication with a back-end data warehouse system. Although the company has many core areas of its online reporting system, including financial reports, status reports, bill pay application usage, and accounting integration, the biggest bottleneck is handling the roughly 50 million messages a day from its kiosks.

Beyond just handling massive amounts of data, Info Touch's messaging system had a number of requirements—the ability to travel through any firewall, easy extensibility to add additional message types and functionality, and guaranteed message delivery and acknowledgement. A traditional Web services architecture using XML worked, but it proved to be a costly solution as the company grew.

XML is flexible, "but the cost of [XML] for our particular solution is a format that adds a lot of additional baggage, both in file size and processing time," said Goncalves. "We could have tried to optimize [an XML] solution at a code level, but it was pretty clear that the specifications that make XML so powerful would also hinder our ability to create the system that we needed."

Because Info Touch's kiosk software and servers know exactly what type of information is being passed back and forth, the company instead created its

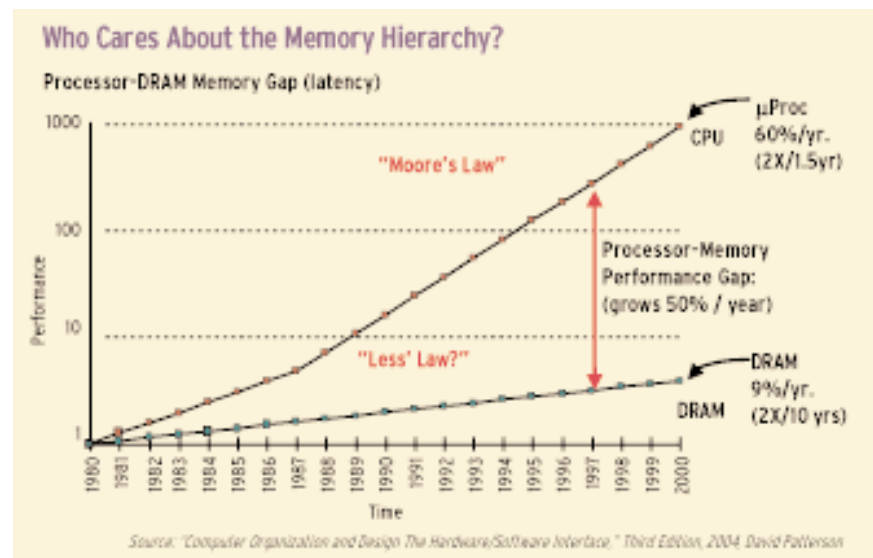
own messaging specification and associated management tools.

Goncalves said that the system has cut the amount of data transferred by 90 percent, lowered the processing time of this data by adding more intelligence to both the kiosk and the server, and ensured that this intelligence is shared so that the front and back ends more efficiently communicate. "The result of this algorithmic optimization is a system that keeps hardware and operational costs low, helping to ensure a quick return on investment when expanding our kiosk networks," he said.

#### FINDING THE PROBLEMS

Knowing where to find bottlenecks and concentrate higher-level optimization efforts is a skill that separates the good programmers and architects from the great ones, Goncalves said. In a distributed system, looking in the right place requires a fairly deep understanding of all the relevant technologies, including database performance, business layer systems, user interface and the usage patterns of customers. This task is made much more complex with modern multi-tiered distributed systems, which have many dependencies, and also many choke points that link different parts of a system together.

Many modern testing tools are able to cope with complex environments—but sometimes the number of links in an application's logic or data chain may proliferate faster than any tool can cope. Consider the case of Philippe



# Think Like a Customer and Remember Your Stopwatch

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lets the clock tick longer on these projects.

Christopher Seiwald, founder of software configuration tools vendor Perforce Software Inc., takes that philosophy a step fur-

ther: He simply keeps tuning until the familiar tick-tock-trickle of customer complaints fades away. Most software, he says, "is still just released onto the population and then revved until these complaints go away."

And if you're not responding to complaints, but rather addressing an unwieldy piece of unimproved code left over from version 1.0, Seiwald suggests relying on the so-called un-optimized rule of thumb—stop tun-

ing when you've doubled your performance.

Decisions about when to start and stop tuning change as the computing environment changes. It wasn't long ago that people wrote programs to run

on single machines. "There were standard operating systems and tools—the tools produced a simple little report that showed where time was being spent—that everybody used," said Alex Aiken, a Stanford University computer science professor.

Today, the overarching trend is toward networked, distributed applications. Trying to improve performance the old-fashioned way, by tuning individual applications or machines in a networked chain, can be a mixed bag.

"Monitoring distributed parallel systems is still largely a black art," said Aiken, whose research interests include tools for detecting errors and checking software specifications, and static program analysis. "While there is active research on the topic, in practice people are still really rolling their own infrastructure."

## BUILDING A SOLUTION

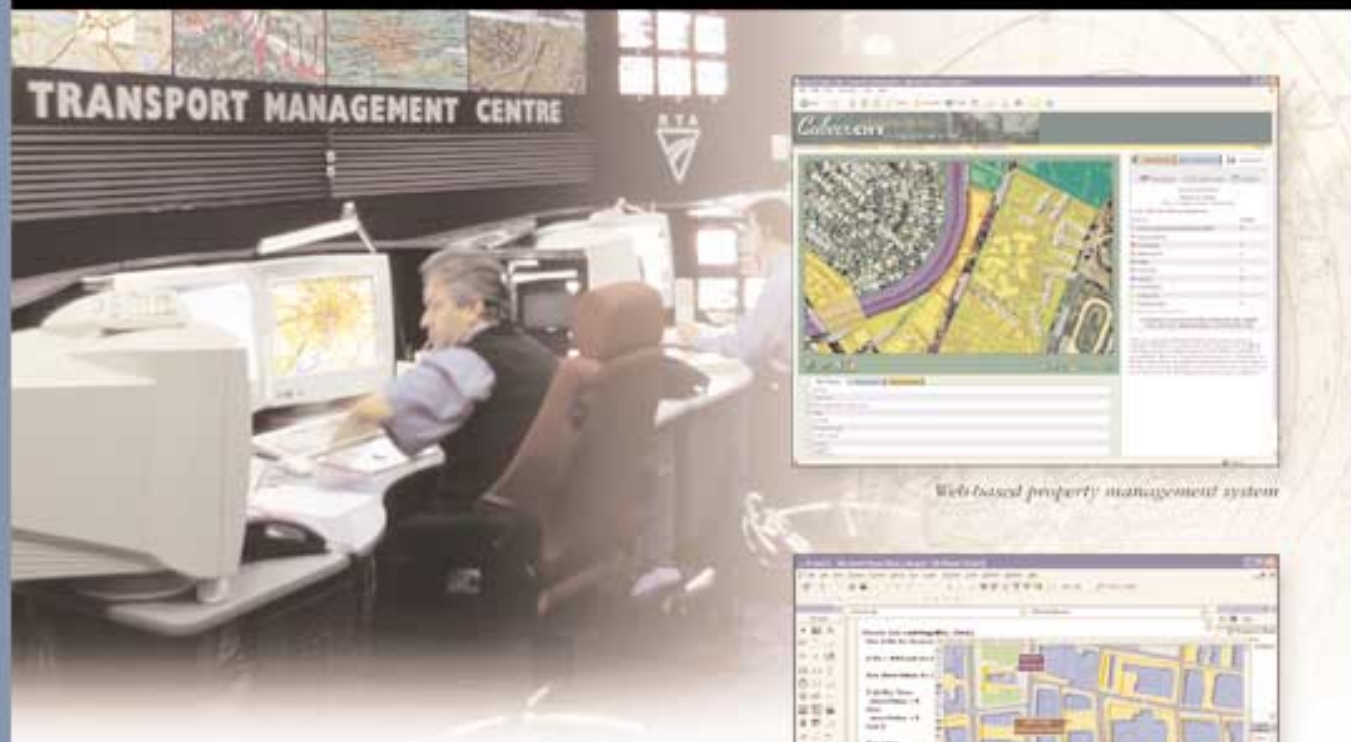
The problem with rolling your own, with undertaking complex integration tasks, is that performance degrades with each boundary crossing in the computing environment. It's a problem that's piqued the interest of Mark Wegman, chief technology officer at IBM Research.

In the late 1960s and early 1970s, computing environments were much simpler and programmers worked close to the machine. "In these situations, it was reasonable for a human being to select the right algorithms," said Wegman, co-inventor of the flow analysis algorithms used in most modern optimizing compilers and of the GIF format. "Today, there are so many more boundaries. And people just don't bother to optimize across all of them."

Programmers and architects often use software components from "elsewhere" to solve problems. The component writer didn't know the exact context in which his code would be used. And the component's algorithms are hidden from the user—that's what information hiding is about.

To bridge this disconnect, "suppose software components could be written with several different algorithms for completing a given task," said Wegman. "Somewhere—maybe in the virtual machine, operating system or compiler—the right algorithm would be selected automatically for the environment." ■

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## EDITORIAL

## The New Faces of Open Source

Many individuals and organizations believe that the open-source development model leads to better quality enterprise applications than the traditional closed-source mode. Other individuals and organizations believe that open-source software is inferior. Some argue that open source is a threat to intellectual property. Others believe that it advances the state of the art.

The debate regarding open-source software isn't going to end any time soon. One reason is that there's no monolithic "open-source development model" whose license model can be analyzed, or its supporters debated.

In fact, it's intellectually risky and disingenuous to generalize about the "open-source development model" at all, or to summarize the beliefs of the "open-source community." There are many specific communities and many different models driving those communities. In some instances, open-source projects aren't being managed by communities at all, but are instead instigated and exploited by for-profit enterprises for their own particular benefit.

Conventional wisdom is that open-source projects are begun by selfless individuals banding together to "do things better," to work collaboratively for open standards, to offer an alternative to proprietary intellectual property, to challenge the might of big corporations and to fight against overly high software prices. Many of today's best-known and most successful projects, such as the Apache Web server and the Linux operating system, were conceived for such reasons. To public advocates, those flagship projects represent the heart and soul of the open-source model, and are the pride of the community.

But while Apache and Linux may be the most romantic and visible of the open-source success stories, those communities don't represent a new generation of projects driven by for-profit companies who tightly control their source tree, and attempt to leverage open-source developers to lend credibility to their products, to drive services revenue, to defray programming costs, to undercut their competitors and to satisfy business partners.

In such projects, changes to the source tree is generally tightly managed by the corporation—not by a community of independent developers. Carefully crafted IP licenses are written for the benefit of the sponsor—not for empowering a community of developers and end users. Advanced features may be saved for paid versions "based" on the open-source software, or for expensive add-ons, which are often themselves closed-source. Costly service contracts can be promoted as the best route to developer and customer support—not enthusiastic volunteer participation on newsgroups or mailing lists.

Is such commercial open source bad? No; in fact, those programs may offer an excellent way for some developers or organizations to acquire excellent software at no cost. But if most of the code was "contributed" by a single sponsor, is maintained by that sponsor, and additions are vetted by that sponsor, many of the benefits of the original open-source movement, such as peer review of code and community-based support, may not be present, and you may find yourself requiring expensive support or paid enhancements, or hamstrung by restrictive licenses. Yes, some "free as in beer" software may be a bargain. But sometimes, it's not worth the hangover. ■

## Outsourcing Realities: Time to Stop Whining

Information technology was the first of the white-collar industries to have experienced offshore outsourcing, but the phenomenon has now spread to call centers, help desks, tax processing, mortgage approvals, medical technicians and a long list of other knowledge-based professions. And virtually every pundit and research firm has the same prognosis for the next several years: more of the same.

Some people think this is good news, and that the American economy will reap long-term benefits. But most of those whose jobs are at risk are understandably nervous, and many strongly oppose the whole concept. More than that, they argue that "somebody ought to do something about outsourcing." Meanwhile, they're mad at their elected leaders for *not* doing something, and somehow being responsible for the evil plot of outsourcing. They're mad at their employers for making cold-blooded, greedy decisions about outsourcing. And they're mad at the whole world for not sympathizing with their plight.

While much of this anger is

understandable, and some of it is justifiable, it's time for us to stand up and tell these angry people: *Stop whining. Stop waiting for someone else to solve the problem. Take charge of your own jobs, your own career and your own future. No one else is going to do it for you.*

That doesn't mean we should allow our elected leaders to hide behind superficial platitudes, or to simply blame "the problem" on the leaders of the opposing party. Yes, *of course* we should eliminate tax loopholes that allow companies to take unfair advantage of offshore work; and yes, *of course* we should ensure that other countries compete against our knowledge-based workers on a level playing field, just as we have done in various blue-collar industries.

And, yes, we should ensure that offshoring of knowledge-based work doesn't create security problems and privacy problems. But that's not going to

eliminate the offshore-outsourcing phenomenon; at most, it will simply slow things down a little. If you need proof, look at the auto industry, the steel industry and the textile industry.

Edward Yourdon



But there are some key differences between the IT industry and the blue-collar industries that first started moving overseas 20 to 30 years ago. Our knowledge-based industries are not going to be wiped out, or reduced to a mere shadow of their former selves: None of the serious economic forecasts suggests that 60 percent, or 80 percent or 100 percent of IT jobs are going to move to India and China. Instead, the predictions are that 10 percent to 20 percent of IT jobs will move elsewhere.

While the loss of 10 percent to 20 percent of IT-related jobs would indeed have a significant impact on the overall national economy (assuming that such jobs were not replaced by other, economically equivalent jobs),

## The Unfaithful Spouse

Recently, I completed a complex, client-facing application that had unusual user interface requirements and it made heavy use of XML, network access, and various forms of encryption on the back end. More than in previous projects, as I negotiated these various programming domains I had the sensation that I was using the wrong programming language: with C++, I was always working at too low a level. It was akin to mowing my lawn with a pair of scissors. The choice, alas, was unalterable because the product could not impose on users the requirement of installing a runtime framework such as .NET or the Java runtime.

The two things I missed the most were garbage collection and a comprehensive, well-implemented library of APIs. Having spent so much time in the trenches on this project, I

have decided that all future work must allow the use of a runtime framework, so that I can avail myself of those two important features. I just can't afford the time lost anymore.

As luck would have it, on my next project—another client-facing app—I can use either C# or Java. A few months ago, I would have chosen C#. I like the language. I like being able to go to ASP.NET when necessary. I really, really like Visual Studio .NET, and I think the extensive APIs are comprehensive and well-designed. I've used C# and Java and I have no religious feelings about either, and the biggest knock on .NET—its lack of portability—has been removed by the release of Mono. So, what's not to like

about C#? Microsoft's lack of fidelity to published programming APIs.

This project is likely to serve as a core component to a larger software package. As such, it will need to be tweaked and maintained in the years to come. As I look out five to 10 years, my enthusiasm for C# begins to wane.

Let's look at this a bit. Anyone who was coding for PCs during the mid-1990s recalls the painful conversion from Win16 to a sequence of difficult-to-distinguish Win32 variants: Win32s, Win32g, and finally, Win32. We then had MFC, which was unavoidable if you wanted to remain at a reasonable level of abstraction. Then last year, we were all force-migrated to C# and

Integration Watch





the *personal* impact of such a scenario is fundamentally different than it was for the auto workers, steel workers and textile workers a decade or two ago.

#### 'BOTTOM' LINE

On a personal level, what all of us need to do is ensure that our employers don't conclude that we're in the *bottom* 10 percent to 20 percent of the IT work force. Ideally, we should find some way to put ourselves into the top 10 percent to 20 percent, where our jobs are likely to remain safe, and we should realize that we're exposed to an increasingly greater degree of risk as we sink into the lower 60 percent to 80 percent. But the bottom 10 percent to 20 percent are, for all practical purposes, doomed to lose their jobs sooner or later, *regardless of what the politicians do or don't do*.

If this seems unnecessarily cruel, think back to the manic period of the late 1990s, when the dot-com boom provided jobs to college kids who felt they were entitled to \$100,000 jobs as Webmasters because they had mastered the arcane intricacies of HTML. When most of these innocent lads and lasses lost their jobs after the bubble burst, did we IT veterans shed a tear? No—because we felt that most of them didn't really *deserve* to have high-paying jobs in an

industry that traditionally required a specialized education and several years of apprentice-level work before moving into the high-paying ranks. In a Darwinian world, the same is unfortunately true for the hard-working, well-meaning veterans who today find themselves in that vulnerable 10 percent to 20 percent economic bracket: They're not "entitled" to jobs if there is an alternative supply of lower-cost, higher-quality, higher-productivity people.

The trick, of course, is figuring out *how* your employer calculates who is in the top 10 percent to 20 percent, and who is in the bottom 10 percent to 20 percent. If *everyone* in your IT department is automatically classified in the bottom category (for example, because of their high salaries), then you'd better find another employer as soon as possible. And if that means moving to another geographical region, or abandoning C++/Java coding work for a noncommodity specialization, or going to work for a smaller company (or even starting your own business), *do it*, and *do it now*, before you get outsourced.

If it means using your own savings account to pay for an advanced certification from Microsoft, Cisco or Oracle, *do it*. If you need to get a certification to document your project-

management skills, security skills or testing/QA skills, *do it*. Do it *yourself*, because neither George Bush, nor John Kerry nor Ralph Nader is going to do it for you in the foreseeable future; and while state and local officials might come up with economic incentives to persuade your employer to avoid outsourcing, it could take months or years. Meanwhile, you may have lost your job and spent several months on the unemployment line.

You need to understand how your "economic value" is determined by your employer, vis-à-vis alternatives from India. It's trivial to determine that your salary is four times higher than an Indian programmer with equivalent education and experience, but is your productivity four times higher? Is your defect rate four times lower? Is your "value" four times higher because of your specialized knowledge of your company's undocumented business processes? Do you have detailed, quantitative metrics with which to make a credible cost-benefit calculation that demonstrates your superior value to the employer? Will your employer respond in an objective, rational fashion if you present such economic figures?

This last question is more serious than it sounds: Many

senior executives are making outsourcing decisions based on political pressure, emotional instincts or utterly unrealistic assumptions about cost savings. But by the time these ill-conceived outsourcing decisions are shown to be a disaster—two or three years into the future—the responsible executives will have been promoted, transferred or retired. Meanwhile, you may have the satisfaction of having been proven right about your economic value, but that won't help if you're sitting on the unemployment line.

All of this may come as a shock to some well-intentioned IT professionals, but it shouldn't be. After all, I first warned of this trend in the IT field a dozen years ago, with my 1992 book "Decline and Fall of the American Programmer." The high-tech boom of the 1990s masked the growth of the Indian IT industry, but now that we're in a situation where supply exceeds demand, it's no surprise that employers are looking for what they perceive to be the best source of cheap, productive, high-quality labor. ■

*Edward Yourdon is a consultant, author and lecturer. His latest book, "Outsource: Competing in the Global Productivity Race," was published by Prentice Hall this month.*

.NET (VB programmers have their own painful version of this story). I liked the language and hoped that with Redmond's commitment to this platform as its future, my investment in learning the APIs would carry me for 10 years, maybe more.

But Microsoft forked this hope with the announcement of WinFX, a new API to be released in 2006 that will replace Win32 and modify the .NET APIs. This announcement means I must consider the distinct possibility that code I write today will be too old to maintain in 10 years. Not that it won't run, but that necessary changes will not be possible because the dev tools will no longer exist and the code base won't be portable to the then-current Windows APIs. My only option will be to rewrite or port the application some time during that timeframe or, more likely, to abandon the software because it can't easily be upgraded. Yech! Who has time for that

kind of nonsense?

Java by comparison suffers from no such problem. The community process that's so widely blamed as an obstacle to innovation prohibits the sudden rewriting of thousands of core programming interfaces. While some early APIs have been deprecated over the years, this superannuation happens slowly and with deliberation. The core APIs of version 1.1 are much in use today. And code written for the AWT still works well today. Notice that Swing did not banish AWT, it extended it in new ways.

When I code in Java, I have every reason to believe that in 10 years someone can look at my code, understand it, and modify it to suit new unanticipated demands. Java feels like a reliable and faithful partner, Microsoft like someone who wants you to get engaged but will not pledge fidelity.

To Microsoft apologists who feel that the radical change to APIs is a normal event in the

progress of all operating systems, I would suggest they look at Linux. It has undergone more growth and more internal change than any other operating system during the last decade, and yet it has steadfastly (and successfully) stuck with the SVR4 UNIX interfaces. Code from early Linux will generally run with little if any changes required.

The value of steadfastness is greater than this question of code longevity. It also saves me from having to relearn things periodically. I don't mind learning new APIs to exploit new functionality (such as JXTA, for example) but I do resent being forced to learn new concepts so as to do nothing more than I was doing before—just with a different API. As a result, I expect that my future platform choices will increasingly be toward Java and for exactly this reason. ■

*Andrew Binstock is the principal analyst at Pacific Data Works LLC.*

#### CORRECTIONS

Microsoft was inadvertently left off the list of WS-Addressing co-authors in a Sept. 15 article on the specification. In that same article, Microsoft's Web services technical marketing director Dave Mendlen was quoted as saying WS-Reliability references the OASIS WS-Addressing specification. It should have said WS-ReliableMessaging.

Oracle director of product marketing Rob Cheng was misidentified in the Sept. 15 special report.

#### WHAT DO YOU THINK?

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# Only Nixon Could Go To China

And only Borland can go to the boardroom. For readers too young, or too busy tripping out to Led Zepelín, to catch the early 1970s reference in the headline, it was said that only Richard Nixon had the anti-Communist credentials to negotiate a thaw in Cold War rivalries with China.

Borland, similarly, believes that its pro-developer history gives it the credibility to align software development and business management practices. "Software Delivery Optimization" is the new buzz-phrase that Borland promotes for this vision. Having acquired several well-regarded products with its purchase of Starbase and TogetherSoft, Borland has a chance to bring into the development mainstream several business-oriented practices that are all too rare today.

The company's challenge will be deploying its limited resources appropriately to deliver seamless integration between these tools while furthering the evolutions of its several development environments and cross-platform libraries and capabilities. In short, Borland has a lot on its plate.

The "SDO" vision extends beyond their .NET- or Windows-specific tools, of course, but Borland's application-lifecycle tools will generally be used from Win-

dows desktops, and its key business-oriented products—the under-appreciated Caliber-RM and the recently acquired Estimate Pro—will be primarily used by Windows-oriented team managers and should be of interest to non-Borland developers. As a matter of fact, if Borland executes well, it's possible that the largest market for these tools will be users of Microsoft's forthcoming Visual Studio Team System.

I've used both Caliber-RM and Estimate Pro on real projects and consider Estimate Pro to be a bit of a "secret weapon." One of the great myths of managing software development is that software project estimation is impossible.

While project estimation is as sensitive as any modeling tool to "garbage in, garbage out," the alternative of going into a managerial planning meeting without any material or a deceptively final-looking Project Gantt chart is suicide. When Estimate Pro's inputs are driven from either an agile "planning game" process or a heavyweight "function point analysis," its outputs can be quite solid and can withstand scrutiny even in a contentious boardroom.

Best of all, of course, is to run Estimate

Pro with different input models and scenarios. Although one risks getting bogged down in "what if" scenarios (and one must never show a "best case" scenario without "expected" and "worst" cases on the same page), time spent looking at a large project from as many angles as possible is time well spent.

Software estimation is something that

can be done by a technical manager with the help of the system architects, but requirements management of enterprise systems requires cooperation between stakeholders. A defect tracking and management system that is only partially used can be even worse than having no formal system in place, and this is even more true with a requirements management tool such as Caliber-RM. Because my experience with Caliber-RM was with just such an uncommitted enterprise, I'm a little more wary of Caliber-RM than I am of Estimate Pro. Nevertheless, I'd be eager to try the tool again in an environment with more buy-in.

Speaking of "buy," there's no doubt that enterprise products are big-ticket, big-investment, many-seat purchases. That executives, not programmers, are

the ones who control the purse strings has not been lost on many companies over the years and the industry landscape is strewn with the rubble of development tools designed to appeal to management rather than developers.

This is the crux of the "only Borland" argument: programmers know that products from Scotts Valley have a history of solid implementations and concrete benefits; executives know that better project control is worth a significant outlay of funds.

Success is not a foregone conclusion, though. Borland's portfolio is overpacked: IDEs, data storage, object brokers, languages, profilers and more. While they certainly all do not take vast resources, they certainly all take some, and for a company with great ambitions and a vast reputation, Borland is surprisingly small (somewhere around 1,100 employees).

If Borland really wants to be the company that brokers the marriage between business and software processes, it needs to deliver, quickly, with exceptional quality. These are familiar imperatives to enterprise developers and Borland would do well to apply the concept of "Software Delivery Optimization" to its own products.■

*Larry O'Brien is a technology consultant and analyst, and the founding editor of Software Development Magazine.*

## Windows & .NET Watch



Larry O'Brien

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# Schizophrenic Development

It's possible to develop a server-side Java app on Windows and run it on Linux, but it's best to develop and test on the same platform. Platform-related inconsistencies (such as threading behavior) make any other approach too risky, and I test too often to develop on one system and test on another. Nonetheless, I don't want to have a dedicated Linux development system. I need to run Quicken, Visio, and other commercial apps.

I've spent the past couple weeks fooling around with one solution to this problem: A desktop machine running both Windows XP (with Service Pack 1) and Red Hat Enterprise Linux WS under the VMware Workstation "virtual-machine" environment. A VMware "virtual machine" is not a Java virtual machine; it's a "swapper" mechanism that lets two operating systems run simultaneously on a single machine, each thinking that it has the hardware to itself.

I also had an ulterior motive. I wanted to see if the latest Red Hat release could actually work as a consumer operating system. Many Java developers seem convinced that that's possible. I don't agree. If you want a solid Unix implementation that makes a great consumer operating system, fitted with a gorgeous graphical UI and able to run

commercial applications, go buy a Mac. Linux is not, and never will be, a platform suitable for use on the average consumer desktop. It's a great server-side operating system, but the very things that make Linux so strong on the server side are a death knell on the client side.

Linux demonstrates why you shouldn't let developers specify products. Linux is too complicated and too hard for a non-developer to use. The existing graphical front ends don't fix this problem. Apple's solution—to write what amounts to a robotic system administrator—works fine, but the Linux community doesn't seem to have either the will or the ability to go this route. The only way to solve this problem is to get the UI specification process out of the hands of developers and into the hands of end users, something that's not likely to happen.

Linux also requires too much hands-on fiddling. For example, Red Hat out of the box can't acquire a DHCP-provided IP address when it boots. This is a well-known kernel bug, for which there's a simple fix, easy to find with a Google search, but it's ridiculous to expect an average computer user to do this work.

Only in the developer/open-source community is it considered acceptable to ship a product with a well-understood show-stopper bug, and expect the person who bought the product to research a fix and apply it manually.

A pure Linux development platform is also problematic. I like working under Linux, as I'm a command-line sorta guy. I couldn't live with Windows were it not for the Cygwin tools or the MKS Toolkit, both of which simulate Unix tools under Windows. Nonetheless, there are too many apps (developer and consumer) that either don't run (or don't run well) on Linux.

Nonetheless, developing Linux apps on Linux is essential, and VMware indeed makes it possible to get the best of both worlds. Apple's new-found enthusiasm for Java—they're finally supporting pre-release versions of the JDK, for example—makes Mac OS X a viable Java development environment as well, but you still have the mismatched-development-and-deployment-platform problem unless you're also running Apple servers.

With VMware, a Linux environment happily coexists with Windows. Both

operating systems run simultaneously, and you can switch back and forth between them without difficulty. You can even run Linux in a window on the Windows desktop (or vice versa if Linux is your primary operating system). You can access shared directories from both operating systems. The only caveat is that you need a lot of memory to get anything like decent performance. My 512 Mb system was sluggish in this configuration until I upgraded it to 1 GB RAM and gave half that memory to Linux.


I have a few minor gripes about VMware. You can't resize the window it runs in (though I usually run it full screen). I really wish you could drag and drop (or at least cut and paste) from the Linux virtual machine to the Windows "host" operating system. My main gripe is that telephone support is not included with the product. I had a couple of installation problems that were easily handled by a phone call, but which would be difficult to figure out from the documentation alone. Unlike many vendors who give 30 days of free support with the product, VMware requires a service contract from day one.

That being said, VMware works like a champ, and really does solve my need for a schizophrenic development system. ■

*Allen Holub is an architect, consultant and instructor in C/C++, Java and OO Design. Reach him at [www.holub.com](http://www.holub.com).*

## Java Watch





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In business, this role of providing impartial, objective information is taken on by analysts. In our industry, Gartner Inc, Aberdeen Group, IDC and a handful of boutique shops exist to give executives looking to buy software some understanding of emerging markets, and also to help software vendors compete in these markets through positioning and differentiation. The understanding has always been that although vendors are big-money clients of those analyst firms, the public utterings and enterprise advice that those analysts offer will remain reasonably impartial and objective, without favoring their paid clients.

Somewhere along the line in the IT world, however, this understanding has nearly ceased to exist. Basically, software vendors pay analysts to write favorable reports on their products, which are then pitched to reporters (and presumably, to enterprise customers) as impartial and objective analyses of those products.

This practice has moved more into the light with the recent announcement by Aberdeen that it is slashing the prices on its vendor-sponsored research and services. On its Web site announcing the new Aberdeen Access program, the company explains to vendors how they can increase market visibility through sponsorship of research reports.

## Industry Watch



I'm sure the expectation of a vendor paying for this research is that his company will therefore be rated favorably against its competition, or as a leader in its particular market.

Aberdeen stands ready to help the company generate leads, train its sales force in business value differentiation, and provide "research-driven case studies demonstrating [a company's] solution's impact in the enterprise. At the same time, Aberdeen will presumably continue to offer reporters and its enterprise clients advice and commentary on that market segment.

The practice of paying for a good analyst review hasn't quite sunk to the level of a game show ("I'd like to buy a leadership quadrant, Pat!"), but it happens far too often and results in tainting an entire segment of the industry to the point that users lose the ability to trust in the information.

This does a disservice to all who work in our industry. If the information decision-makers need to rely on is tainted, it ceases to be reliable. This makes it harder for them to do their jobs, leaving them to fall back on the proven tools they know.

Where can people turn for reliable, impartial, objective information? Where they always have... to the newspaper.

## A MATTER OF TRUST

An SEC probe. Fines. Indictments. A shakeup down the executive corridor, resulting in the CEO being brought up on charges. A survey that reveals customers are not happy with the company's performance. Board-room battles over who should now run the company.

While it reads like a soap opera, it's actually life as we know it at Computer Associates, an industry giant that has been rocked for the past couple of years by scandal after scandal. And every time you think the saga is played out, another revelation emerges, another investigation launched, and another black mark blemishes the company's name.

Late last month, former chairman and CEO Sanjay Kumar and former executive VP of sales Stephen Richards were indicted and entered not-guilty pleas on charges related to an alleged scheme to book sales before they were closed to help meet Wall Street expectations. The plot is alleged to have affected US\$2.2 billion worth of sales.

Meanwhile, a recent survey by Walker Information Inc. showed CA ranked near the bottom in a survey seeking opinions on 10 top technology companies. While the company didn't reveal the scores, it was reported in the Long Island newspaper Newsday that only half of those surveyed were satisfied with CA's product quality, and only about a third were satisfied with the tech support.

Now it is reported that the board is wrangling over who will lead CA from here. Current CEO Ken Cron has support from board chairman Lewis Rainieri and major stockholder Walter Haefner. Others want an outsider.

It is clear that CA has not figured out how to put this mess behind it. Until it does, its stock price will languish, and its reputation will remain stained. ■

David Rubinstein is editor of SD Times.



## CALENDAR OF EVENTS

- |   |                   |
|---|-------------------|
| <b>Gartner Symposium/ITxpo</b><br>Orlando, Fla.<br>GARTNER INC.<br><a href="http://www4.gartner.com/2_events/symposium/worldwide.html">www4.gartner.com/2_events/symposium/worldwide.html</a>               | <b>Oct. 17-22</b> |
| <b>SoftSummit</b><br>Santa Clara<br>MACROVISION CORP.<br><a href="http://www.softsummit.com">www.softsummit.com</a>   | <b>Oct. 18-19</b> |
| <b>Wolfram Technology Conference</b><br>Champaign, Ill.<br>WOLFRAM RESEARCH INC.<br><a href="http://www.wolfram.com/news/events/techconf2004">www.wolfram.com/news/events/techconf2004</a>                  | <b>Oct. 21-23</b> |
| <b>SIGPLAN Conference on Object-Oriented Programming (OOPSLA)</b><br>Vancouver, British Columbia<br>ASSOCIATION FOR COMPUTING MACHINERY<br><a href="http://www.oopsia.org/2004">www.oopsia.org/2004</a>     | <b>Oct. 24-28</b> |
| <b>Colorado Software Summit</b><br>Keystone, Colo.<br>KOVSKY CONFERENCE PRODUCTIONS INC.<br><a href="http://www.softwaresummit.com">www.softwaresummit.com</a>  | <b>Oct. 24-29</b> |
| <b>Mac OS X Conference</b><br>Santa Clara<br>O'REILLY MEDIA INC.<br><a href="http://www.conferences.oreillynet.com">www.conferences.oreillynet.com</a>  | <b>Oct. 25-28</b> |
| <b>Macromedia MAX 2004</b><br>New Orleans<br>MACROMEDIA INC.<br><a href="http://www.macromedia.com/macromedia/events/max">www.macromedia.com/macromedia/events/max</a>                                      | <b>Nov. 1-4</b>   |
| <b>Supercomputing 2004</b><br>Pittsburgh<br>ACM & IEEE COMPUTER SOCIETY<br><a href="http://www.sc-conference.org/sc2004">www.sc-conference.org/sc2004</a>   | <b>Nov. 6-12</b>  |
| <b>ASP.NET Connections &amp; Visual Studio Connections</b><br>Las Vegas<br>PENTON MEDIA INC.<br><a href="http://www.devconnections.com">www.devconnections.com</a>  | <b>Nov. 7-10</b>  |
| <b>IntegrationWorld</b><br>San Diego<br>WEBMETHODS INC.<br><a href="http://integrationworld.webmethods.com">http://integrationworld.webmethods.com</a>  | <b>Nov. 8-10</b>  |
| <b>Application Integration &amp; Web Services Summit</b><br>Orlando<br>GARTNER INC.<br><a href="http://www3.gartner.com/2_events/conferences/apn13.jsp">www3.gartner.com/2_events/conferences/apn13.jsp</a> | <b>Nov. 15-17</b> |
| <b>XML Conference &amp; Expo</b><br>Washington, D.C.<br>IDEALLIANCE INC.<br><a href="http://www.xmlconference.org/xmlusa">www.xmlconference.org/xmlusa</a>  | <b>Nov. 15-19</b> |
| <b>Software Test &amp; Performance Conference</b><br>Baltimore<br>BZ MEDIA LLC<br><a href="http://www.stpcon.com">www.stpcon.com</a>  | <b>Dec. 7-9</b>   |

For a more complete calendar of U.S. software development events, see [www.bzmedia.com/calendar](http://www.bzmedia.com/calendar).

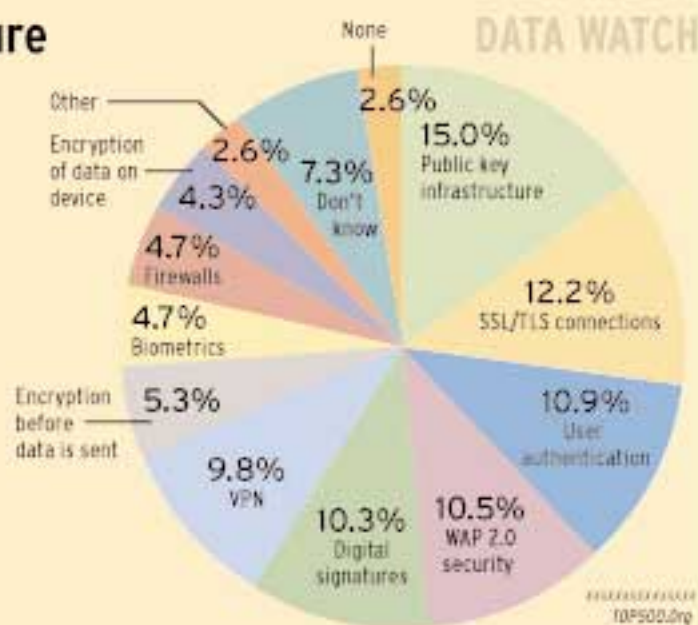
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## What Are You Using to Secure Wireless Applications?

Public key infrastructure is most often selected by developers for securing data that is sent to mobile and wireless users, according to a report published by Evans Data Corp.

The summer 2004 Wireless Development Survey which polled more than 450 developers from countries around the world, found that after PKI, secure sockets layer (SSL) and transport layer security (TLS), user authentication, WAP 2.0 and digital signatures were employed about evenly.

Virtual private networking (VPN) is in use by slightly fewer than one in 10 respondents; the remaining protocols are being used by 5 percent or fewer. Only about 4 percent of respondents said they encrypt data stored on a device, widely considered among the safest ways to protect against compromised security in the event of device theft. Fewer than three in 100 use no security method.





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- Issue Tracking Integration
- Microsoft Visual Studio .NET Integration

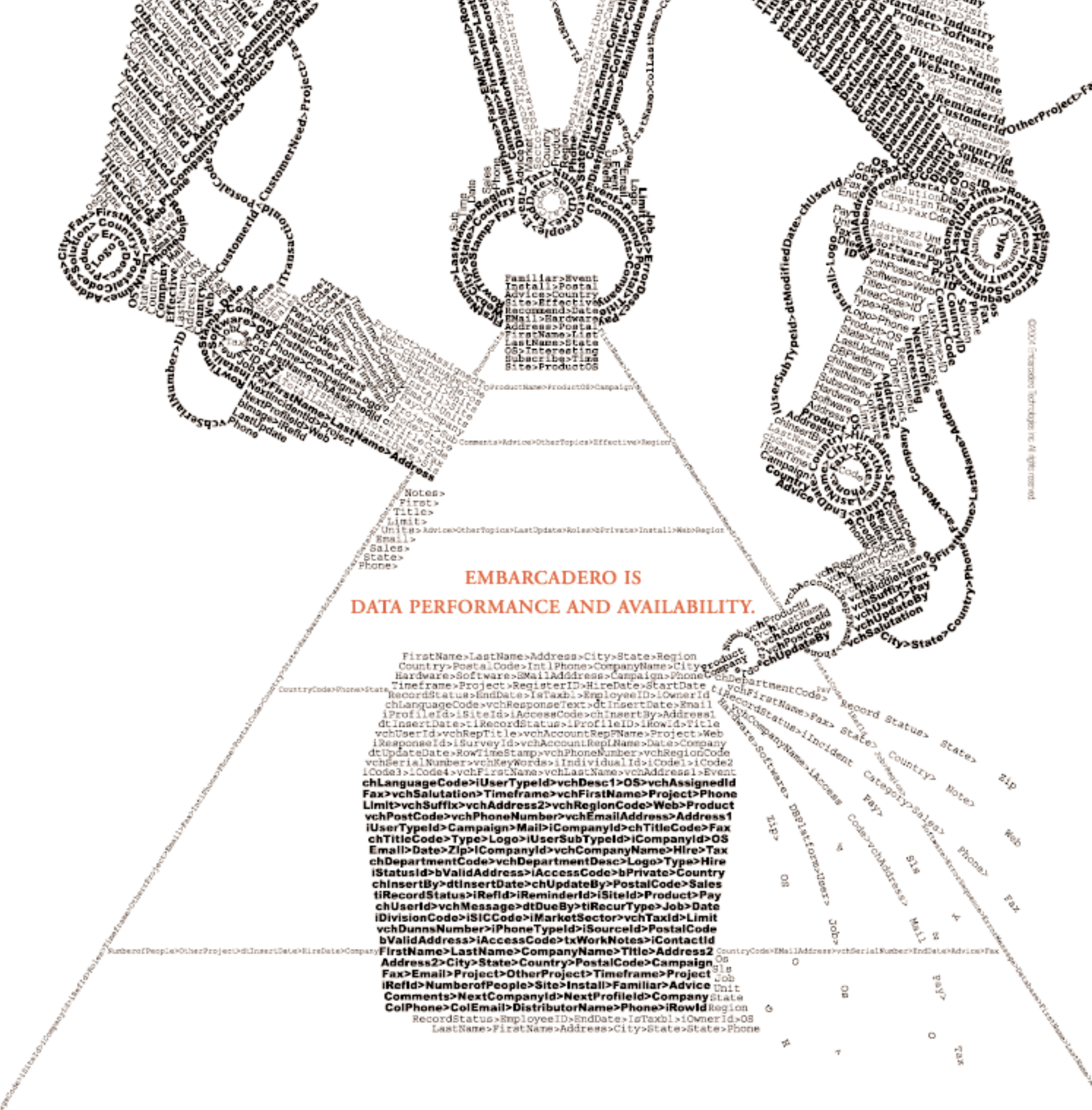


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